

The Gazette



of India

PUBLISHED BY AUTHORITY

No. 22] NEW DELHI, SATURDAY, JUNE 2, 1956

## NOTICE

The undermentioned Gazettes of India Extraordinary were published upto the 23rd May, 1956:—

Issue No.	No. and date	Issued by	Subject
157	S.R.O. 1186, dated the 19th May, 1956.	Ministry of Labour.	Appointment of date on which certain sections of the Employees State Insurance Act, 1948, shall come into force in certain areas of the State of Madhya Pradesh.
158	S.R.O. 1187, dated the 19th May, 1956.	Central Board of Revenue.	Establishment of Land Custom Stations for levy of duties of Land Customs in areas adjoining the frontiers with Tibet.
	S.R.O. 1188, dated the 19th May, 1956.	Ditto	Form of application for a permit for the passage of goods, by land out of the foreign territory of Tibet.
158A	S.R.O. 1188-A, dated the 19th May, 1956.	Ministry of Health.	The power to make orders under section 3 of the Essential commodities Act, 1955, shall, in relation to drugs, be exercisable also by the state Government of Uttar Pradesh.
159	S.R.O. 1189, dated the 5th May, 1956	Election Commission India.	Election Petition No. 18 of 1952.
160	S.R.O. 1217, dated the 23rd May, 1956.	Ministry of Commerce and Industry.	Grant of recognition to the Bombay oilseeds Exchange, Limited in exercise of the powers conferred by the Forward contracts (Regulation) Act, 1952.
	S.R.O. 1218, dated the 23rd May, 1956.	Ditto	Amendments made in the notification No. S.R.O. 241, dated 25th January 1955.
	S.R.O. 1219, dated the 23rd May 1956.	Ditto	The Central Government declares that certain section of the Forward contracts (Regulation) Act, 1952, shall apply to castor seed in whole of the territories except the State of Hyderabad.

Issue No.	No. and date	Issued by	Subject
	S.R.O. 1220, dated the 23rd May, 1956.	Ministry of Commerce and Industry.	The Central Government rescinds the notification No. S.R.O. 243, dated the 25th January 1955.
	S.R.O. 1221, dated the 23rd May, 1956.	Ditto	Amendment made in the notification No. S.R.O. 244, dated the 25th January, 1955.
	S.R.O. 1222, dated the 23rd May, 1956.	Ditto	Amendment made in the notification No. S.R.O. 244, dated the 25th January, 1955.
161	S.R.O. 1223, dated the 23rd May, 1956.	Ministry of Railways.	Appointment of Claims Commissioner to deal with claims for compensation due to accident to 520 down passenger in the North Eastern Railway.

Copies of the *Gazettes Extraordinary* mentioned above will be supplied on indent to the Manager of Publications, Civil Lines, Delhi. Indents should be submitted so as to reach the Manager within ten days of the date of issue of these Gazettes.

### PART II—Section 3

**Statutory Rules and Orders issued by the Ministries of the Government of India (other than the Ministry of Defence) and Central Authorities (other than the Chief Commissioners).**

#### ELECTION COMMISSION, INDIA

*New Delhi, the 26th May 1956*

**S.R.O. 1231.**—In pursuance of sub-rule (5) of rule 114 of the Representation of the People (Conduct of Elections and Election Petitions) Rules, 1951, the name of the person shown in column I of the Schedule below who having been nominated as a candidate for election to the House of the People from the constituency specified in column 2 thereof at the bye-election held in March, 1956 and having appointed himself to be his election agent at the said election, has, in accordance with the decision given by the Election Commission under sub-rule (4) of the said rule, failed to lodge the return of election expenses within the time and in the manner required and has thereby incurred the disqualifications under clause (c) of section 7 and section 143 of the Representation of the People Act, 1951 (XLIII of 1951), is hereby published:—

#### SCHEDULE

Name of the Candidate 1	Name of constituency 2
Shri Satyabrata Lahkar, Rehabari Road, Ward No. X, Gauhati Town, P.O. Gauhati, Assam.	Gauhati.

[No. AS-P/5/56(1) Bye.]

By Order,

P. S. SUBRAMANIAN, Secy.

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**MINISTRY OF LAW***New Delhi, the 28th May 1956*

**S.R.O. 1232.**—The following notification issued by the Government of the Union of Burma is published for general information:—

**“GOVERNMENT OF THE UNION OF BURMA  
MINISTRY OF JUDICIAL AFFAIRS**

**MISCELLANEOUS BRANCH**

**NOTIFICATION**

*Rangoon, the 24th December 1955*

In exercise of the powers conferred by sub-section (1) of section 3 of the Maintenance Orders Enforcement Act, the President of the Union is pleased to declare that the provisions of the said Act ~~shall apply in respect of the whole of the Republic of India except Jammu and Kashmir.~~

By Order,  
THANE,

Secy. to the Govt. of the Union of Burma,  
Ministry of Judicial Affairs”.

[No. F.27(3)/55-G.]

G. S. GAITONDE, Dy. Secy.

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*New Delhi, the 29th May 1956*

**S.R.O. 1233.**—In exercise of the powers conferred by clause (c) of Section 29 of the Code of Civil Procedure, 1908 (Act V of 1908), and in supersession of the late Home Department Notification No. 244, dated the 16th February, 1909, the Central Government hereby declares that the provisions of the said section shall apply to all Civil Courts in the Colony of Singapore.

[No. F.46(I)/56-Judl.]

H. R. KRISHNAN, Joint Secy.

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**MINISTRY OF HOME AFFAIRS***New Delhi, the 23rd May 1956*

**S.R.O. 1234.**—In exercise of the powers conferred by Entry 3(b) of the Table annexed to Schedule I to the Indian Arms Rules, 1951, the Central Government is pleased to specify Kanwar Shiv Singh, an uncle of the Ruler of Mahlog, for purposes of that entry.

[No. 16/10/56-Police-IV.]

C. P. S. MENON, Under Secy.

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*New Delhi-2, the 29th May 1956*

**S.R.O. 1236.**—In exercise of the powers conferred by section 22 of the Bengal Agricultural Income-tax Act, 1944 (Bengal Act IV of 1944), as extended to the State of Tripura, the Central Government hereby appoints for the purpose of hearing appeals preferred under section 36 of the said Act, an Appellate Tribunal consisting of the following three members, namely:—

1. The District and Sessions Judge, Tripura, *ex-officio*—Judicial member and President of the Tribunal.
2. Shri R. C. Bhattacharjee, B.L., Advocate, Agartala—Lawyer member.
3. Shri Krishnadas Bhattacharjee, B.Com., A.C.A., Chartered Accountant, Agartala—Accountant member.

Each of the members mentioned above is appointed for the period of six months commencing on and from the date of this notification.

[No. F.12(9)-J/II/56.]

S. NARAYANSWAMY, Dy. Secy.

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#### ORDER

*New Delhi-2, the 22nd May, 1956*

**S.R.O. 1237.**—In pursuance of clause (22) of Article 366 of the Constitution of India the President is hereby pleased to recognise Nawabzada Asif Muhammad Khan, as the Ruler of Pathari with effect from the 26th March, 1956, in succession to the late Nawab Sharah Muhammad Khan.

[No. F.1/7/56-Poll.III.]

V. VISWANATHAN, Joint Secy.

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#### MINISTRY OF EXTERNAL AFFAIRS

*New Delhi, the 18th May 1956*

**S.R.O. 1238.**—In pursuance of sub-section (2) of Section 4 of the Port Haj Committee Act, 1932 (XX of 1932), the Central Government is pleased to nominate Shri B. N. Wahal, Regional Traffic Superintendent, Western Railway, Bombay, as a member of the Port Haj Committee, Bombay, in the vacancy caused by the retirement of Shri C. G. Rees.

[No. F.31(1)-WANA/56.]

MOHD. YUNUS, Dy. Secy.

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**(Department of Economic Affairs)***New Delhi, the 25th May 1956*

**S.R.O. 1240.**—In exercise of the powers conferred by section 53 of the Banking Companies Act, 1949 (X of 1949), the Central Government, on the recommendation of the Reserve Bank of India, hereby declares that the provisions of sub-clause (ii) of clause (c) of sub-section (1) of Section 10 of the said Act shall not apply to the State Bank of India before the 1st July, 1957.

[No. F.8(35)-FI/RO/56.]

J. L. KUNDU, Dy. Secy.

**(Department of Company Law Administration)***New Delhi, the 22nd May. 1956*

**S.R.O. 1241.**—In exercise of the powers conferred by clause (a) of sub-section (1) of section 448 of the Companies Act, 1956 (1 of 1956) the Central Government hereby appoints Sardar Devi Dayal Khanna, Registrar of the High Court of the Patiala and East Punjab States Union, Patiala, *ex-officio*, to be the Official Liquidator attached to that Court, as a part time officer.

[No. 2(19)-CL-III/56.]

SHIV CHARAN SINGH, Dy. Secy.

**(Department of Company Law Administration)***New Delhi, the 23rd May. 1956*

**S.R.O. 1242.**—Shri M. R. Bhide, I.C.S., Joint Secretary to the Government of India, Ministry of Finance, Department of Company Law Administration is, in addition to his duties, appointed as the Controller of Capital Issues with effect from 17th May, 1956 until further orders.

[No. 16(47)-CLA/55.]

K. R. P. AIYANGAR, Joint Secy.

**MINISTRY OF FINANCE (REVENUE DIVISION)***New Delhi, the 21st May 1956*

**S.R.O. 1243.**—The following draft of a further amendment in the Indian Income-tax (Provident Funds Relief) Rules, which the Central Government proposes to make in exercise of the powers conferred by sub-section (2) of section 58L of the Indian Income-tax Act, 1922 (XI of 1922), is published as required by sub-section (1) of the said section read with sub-section (4) of section 59 of the said Act, for the information of all persons likely to be affected thereby and notice is hereby given that the said draft will be taken into consideration on or after the 31st August 1956.

Any objection or suggestion which may be received from any person with respect to the said draft before the date so specified will be considered by the Central Government.

**Draft Amendment**

In rule 4 of the said rule

(a) for the proviso to clause (a) of sub-rule (1), the following proviso shall be substituted, namely:—

Provided that in the case of an employee whose income under the head "salaries" does not exceed Rs. 3,600 per annum, the Trustees of the Fund may, in their discretion, waive the condition that such house or site shall be assigned to them and instead require as a condition that the employee shall not encumber or alienate the property in any manner."

(b) In sub-rule (2), the words "reside with and" shall be omitted.

[No. 41.]

P. N. DAS GUPTA, Dy. Secy.

## CUSTOMS

*New Delhi, the 1st June 1956*

**S.R.O. 1244.**—In exercise of the powers conferred by section 6 of the Sea Customs Act, 1878 (VIII of 1878), the Central Government hereby appoints the Chief Inspector, Preventive Department in the Cochin Customs House, to be Customs Collector for the port of Cochin and to exercise the powers conferred and perform the duties imposed by the said Act upon a Customs Collector.

[No. 31.]

E. S. KRISHNAMOORTHY, Jt. Secy.

## CUSTOMS

*New Delhi, the 1st June 1956*

**S.R.O. 1245.**—In exercise of the powers conferred by section 6 of the Sea Customs Act, 1878 (VIII of 1878), the Central Government hereby appoints the Preventive Officers in-charge of Mahim, Worli Bunder, Sassoon Docks, Tank and Malet Bunders and the Deputy Superintendent, Coasting Trade Establishment, in the Bombay Custom House, to be Customs Collectors for the port of Bombay and to exercise the powers conferred and perform the duties imposed on a Customs Collector.

[No. 34.]

JASJIT SINGH, Dy. Secy.

## CENTRAL EXCISES

*New Delhi, the 2nd June 1956*

**S.R.O. 1246.**—In exercise of the powers conferred by section 37 of the Central Excises and Salt Act, 1944 (I of 1944), as in force in India and as applied to the State of Pondicherry, the Central Government hereby makes the following further amendments in the Central Excise Rules, 1944, namely:—

In the said Rules—

1. In rule 164, the following provisos shall be inserted at the end, namely:—

“Provided that the Collector may instead of requiring the owner to execute a bond at the time of each deposit permit the owner to enter into a general bond in the proper form, with such surety or sureties or security in such amount, and under such conditions, as the Collector may think necessary or sufficient, for the deposit, from time to time, of excisable goods in such warehouse:

Provided further that, in the event of the death, insolvency or insufficiency of the surety, or of the inadequacy of the amount of the bond or the security, the Collector may, in his discretion, demand a fresh bond, additional surety or additional security or all or any of them.”

2. (a) In the table under the heading “List of Central Excise Forms”, after the entries relating to Central Excise Series No. 30, the following shall be inserted, namely:—

“Central Excise Series No.	Description of form		Short title
30 A	General : with surety -do-	164	B. 6 (Gen. Sur.)
30 B	General ; with security -do-	164	B. 6 (Gen. Sec)”

(b) After form B-6 (Central Excise Series No. 30), the following forms shall be inserted, namely:—

(i) "Central Excise Series No. 30-A.

Range  
Circle

FORM B-6 (GEN. SUR.)

General Bond (with surety/ies) for duty on excisable goods deposited in a public bonded warehouse

(Rule 164)

(Delete the letters and words not applicable).

I/We, \_\_\_\_\_ of \_\_\_\_\_ [hereinafter called the obligor(s)] am/are bound to the President of India (hereinafter called the President) in the sum of \_\_\_\_\_ rupees and I/we

of (hereinafter called the "First Surety")  
of (hereinafter called the "Second Surety")  
of (hereinafter called the "Third Surety")  
of (hereinafter called the "Fourth Surety")

(all hereinafter referred to as the First Surety, the Second Surety, the Third Surety, the Fourth Surety respectively) are each of us severally bound to the President in the sum of \_\_\_\_\_ rupees each to be paid to the President for which payment I/we the obligor/obligor(s) bind myself/ourselves and my/our legal representatives and I/we the above named First Surety, the Second Surety, the Third Surety and the Fourth Surety severally bind myself/ourselves and my/our legal representatives.

The above bounden obligor(s) having applied to \_\_\_\_\_ of Central Excises at \_\_\_\_\_ for and obtained permission to lodge in the public bonded warehouse at \_\_\_\_\_ for a period of \_\_\_\_\_ non-duty paid\* received from time to time under valid transport documents.

The condition of this bond is that if the obligor(s) and his/their legal representatives shall observe all the provisions of the Central Excise Rules, 1944, to be observed by owners of excisable goods warehoused and by persons obtaining permission to warehouse excisable goods under the provisions thereof;

And if the said obligor(s) or his/their legal representatives shall pay to the Collector of Central Excise at \_\_\_\_\_ [hereinafter called the Collector] all dues, whether excise duty, warehouse dues, rent or other lawful charges which shall be demandable on the said goods, or on account of penalties incurred for contravention of the provisions of the Act or the Rules in respect of such goods within \_\_\_\_\_ from the date of this bond or within such further time as the Collector shall allow in that behalf, together with interest on every such sum at the rate of six per cent. per annum from the date of demand thereof being made in writing by the officer of Central Excises;

And if, within the terms so fixed or enlarged, the said goods or any portion thereof, having been removed from the said warehouse for home consumption or export, the full amount of all duties, warehouse rent or other lawful charges, penalties and interest, demandable as aforesaid shall have been first paid on the whole of the said goods:

This obligation shall be void.

Otherwise and on breach or failure in the performance of any part of this condition, the same shall be in full force. I/We declare that this bond is given under the orders of the Central Government for the performance of an act in which the public is interested.

Place

Date

Witnesses (1)

Address (1)

Signature(s) of obligor(s).

Occupation (1)

(2)

Address (2)

Occupation (2)

Witnesses (1)

Address (1)

Signature(s) of surety(ies).

Occupation (1)

(2)

Address (2)

Occupation (2)

Accepted by me this

day of

19

of Central

\*Here enter the description of the excisable goods".  
Excise for and on behalf of the President of India.

(ii) "Central Excise Series No. 30-B.

Range  
Circle

FORM B-6 (GEN. SEC.)

*General Bond (with security) for duty on excisable goods deposited in a public bonded warehouse*

(Rule 164)

(Delete the letters and words not applicable).

I/We \_\_\_\_\_ of \_\_\_\_\_ [hereinafter called the obligor(s)] am/are jointly and severally bound to the President of India (hereinafter called "the President") in the sum of \_\_\_\_\_ rupees to be paid to the President for which payment I/we jointly and severally bind myself/ourselves and my/our legal representatives.

The above bounden obligor(s) having applied to \_\_\_\_\_ of Central Excise at \_\_\_\_\_ for and obtained permission to lodge in the public bonded warehouse at \_\_\_\_\_ for a period of non-duty paid \* received from time to time under valid transport documents.

Whereas the Collector of Central Excise at \_\_\_\_\_ (hereinafter called the Collector) has required the obligor(s) to deposit as guarantee for the amount of this bond the sum of \_\_\_\_\_ rupees in cash the securities as hereinafter mentioned of a total face value of \_\_\_\_\_ rupees endorsed in the Collector's favour, namely:—

And whereas the obligor(s) has/have furnished such guarantee by depositing with the Collector the cash/securities as afore-mentioned.

The condition of this bond is that if the obligor(s) and his/their representatives shall observe all the provisions of the Central Excise Rules, 1944, to be observed by owners of excisable goods warehoused and by persons obtaining permission to warehouse excisable goods under the provisions thereof;

And if, within the terms so fixed or enlarged, the said goods or any portion thereof shall be demandable on the said goods, or on account of penalties incurred for contravention of the provisions of the Act or the Rules in respect of such goods within \_\_\_\_\_ from the date of this bond or within such further time as the Collector shall allow in that behalf, together with interest on every such sum at the rate of six per cent. per annum from the date of demand thereof being made in writing by the officer of Central Excises:

And if, within that terms so fixed or enlarged, the said goods or any portion thereof, having been removed from the said warehouse for home consumption or export, the full amount of all duties, warehouse rent or other lawful charges, penalties and interest, demandable as aforesaid shall have been first paid on the whole of the said goods:

This obligation shall be void.

Otherwise and on breach or failure in the performance of any part of this condition, the same shall be in full force.

And the President shall, at his option, be competent to make good all the loss and damages either from the amount of the guarantee deposit or by enforcing his rights under the above written bond or by both.

I/We declare that this bond is given under the orders of the Central Government for the performance of an act in which the public are interested.

Place

Date

Witnesses (1)

Address (1)

Signature(s) of obligor(s).

Occupation (1)

(2)

Address (2)

Occupation (2)

Accepted by me this

day of

19

of Central Excise

for and on

behalf of the President of India.

\*Here enter the description of the excisable goods."

[No. 4-CER/56.]

W. SALDANHA, Dy. Secy.



## CENTRAL BOARD OF REVENUE

*New Delhi, the 21st May 1956*

**S.R.O. 1247.**—The following draft of a further amendment in the Indian Income-tax (Provident Funds Relief) (Central Board of Revenue) Rules, which the Central Board of Revenue proposes to make in exercise of the powers conferred by section 59 of the Indian Income-tax Act, 1922 (XI of 1922), is published as required by sub-section (4) of the said section, for the information of all persons likely to be affected thereby and notice is hereby given that the said draft will be taken into consideration on or after the 31st August 1956.

Any objection or suggestion which may be received from any person with respect to the said draft before the date so specified will be considered by the said Board.

*Draft Amendment*

In rule 7 of the said rules, for the words and figures "whose income under the head 'salaries' is Rs. 3,000 or over per annum", the words and figures "in respect of whom a return is required to be furnished under rule 16 of the Indian Income-tax Rules, 1922" shall be substituted.

[No. 42.]

P. N. DAS GUPTA, Secy.

## INCOME-TAX

*New Delhi, the 29th May 1956*

**S.R.O. 1248.**—[50/11/55-IT].—In pursuance of sub-section (4) of Section 5 of the Indian Income-tax Act, 1922 (XI of 1922), the Central Board of Revenue hereby directs that the following further amendments shall be made to its notification No. 32-Income-tax, dated the 9th November 1946, namely:—

In the schedule appended to the said notification under the sub-head "V-Uttar Pradesh and Vindhya Pradesh" under:

(a) Banaras Range, after entry "6. Gonda" the following entry shall be added:—

"7. Special Estate Duty cum Income-tax Circle, Banaras;"

(b) Lucknow Range, after entry "5. Project Circle" the following entry shall be added:—

"6. Special Estate Duty cum Income-tax Circle Lucknow;" and

(c) Meerut Range, after entry "6. Special Survey Circle, Meerut", the following entry shall be added:—

"7. Special Estate Duty cum Income-tax Circle, Meerut."

[No. 43.]

M. S. SIVRAMAKRISHNA, Under Secy.

## CUSTOMS

*New Delhi, the 1st June 1956*

**S.R.O. 1249.**—In exercise of the powers conferred by section 9 of the Sea Customs Act, 1878 (VIII of 1878), the Central Board of Revenue hereby makes the following amendment in the rules published with the notification of the Commissioner of Customs, Bombay, No. 3120, dated the 9th May, 1911 and the rules published with the notification of the Commissioner of Customs, Bombay, No. 253-6, dated the 1st October, 1920, namely:—

In the said rules, rule 3 shall be omitted.

[No. 32.]

**S.R.O. 1250.**—In exercise of the powers conferred by section 9 of the Sea Customs Act, 1878 (VIII of 1878), the Central Board of Revenue hereby directs that the Chief Inspector, Preventive Department who has been appointed customs

collector by notification of the Government of India in the Ministry of Finance No. 31, dated the 1st June, 1956 shall exercise the powers conferred and perform the duties imposed on the customs collector only in relation to sections 61 to 66 of the said Act.

[No. 33.]

**S.R.O. 1251.**—In exercise of the powers conferred by section 9 of the Sea Customs Act, 1878 (VIII of 1878), the Central Board of Revenue hereby directs that the Preventive Officers in-charge of Mahim, Worli Bunder, Sassoon Docks, Tank and Malet Bunders and the Deputy Superintendent, Coasting Trade Establishment in the Bombay Custom House, who have been appointed customs collectors by notification of the Government of India in the Ministry of Finance No. 34, dated the 1st June, 1956 shall exercise the powers conferred and perform the duties imposed on the customs collector only in relation to sections 158, 159, 160 and 201, of the said Act.

[No. 35.]

JASJIT SINGH, Secy.

### MINISTRY OF COMMERCE AND INDUSTRY

*New Delhi, the 29th May 1956*

**S.R.O. 1252.**—In exercise of the powers conferred by sub-section 4 of section 11 of the Forward Contracts (Regulation) Act, 1952 (No. 74 of 1952), the Central Government hereby approves the following amendments made by the Bombay Oilseeds Exchange Limited, Bombay, in its bye-laws, namely:—

(1) In bye-law 109 for the words "the end of the working day" the words "the end of the day" shall be substituted.

(2) In bye-law 167 for the figures and letters "1-30 p.m." the figures and letters "2-30 p.m." shall be substituted.

(3) After bye-law 288(a)(ii), the following bye-law shall be inserted as bye-law 288(a)(iii), namely:—

"There shall be no trading after 2-00 p.m. on the due date in respect of the hedge contract for which the due date rate is to be fixed on that date."

In pursuance of the proviso to sub-section (4) of section 11 of the Forward Contracts (Regulation) Act, 1952 (74 of 1952), the Central Government in the interest of trade dispenses with the condition of previous publication of the amendments aforesaid in the Gazette of India and the Bombay Government Gazette.

[No. F-6/2/56-IP(B).]

P. S. SUNDARAM, Dy. Secy.

### ORDER

*New Delhi, the 23rd May 1956*

**S.R.O. 1253.**—IDRA/6/1/Am(1).—In exercise of the powers conferred by section 6 of the Industries (Development and Regulation) Act, 1951 (LXV of 1951), read with paragraph 1(b) of the Order of the Government of India in the Ministry of Commerce and Industry No. S.R.O. 432/IDRA/6/1, dated the 16th February, 1956, the Central Government hereby appoints Shri G. Ramanujam, Secretary, Indian National Trade Union Congress—Tamilnad Branch, 3/66 Trichy Road, Ramanathapuram, Coimbatore, as a member of the Development Council

established by the said Order for the scheduled industry engaged in the manufacture and production of bicycles, and directs that the following amendments shall be made in the said Order, namely:—

(i) For item 10 and the entries relating thereto, the following shall be substituted, namely:—

- "10. Shri Amarnath Vidyalankar, M. P.,  
135, North Avenue,  
New Delhi.
- "10A. Shri G. Ramanujam,  
Secretary,  
Indian National Trade Union  
Congress Tarnilnad Branch,  
3/66 Trichy Road,  
Ramanathapuram,  
Coimbatore.

"being persons who in the opinion of the Central Government are capable of representing the interests of persons employed in industrial undertakings in the said scheduled industry;"

(ii) Paragraph 1(b) shall be omitted.

[No. 5(20)IA(GB)/55.]

R. N. KAPUR, Under Secy.



### (Indian Standards Institution)

*Delhi, the 15th May 1956*

**S.R.O. 1254**—In pursuance of sub-rule (1) of rule 4 of the Indian Standards Institution (Certification Marks) Rules, 1955, the Indian Standards Institution hereby notifies that two more Standard Marks, designs of which together with the verbal description of the designs and the titles of the related Indian Standards are given in the Schedule hereto annexed, have been specified.

These Standard Marks, for the purpose of the Indian Standards Institution (Certification Marks) Act, 1952 and the rules and regulations framed thereunder, shall come into force with effect from 1st June 1956.

#### THE SCHEDULE

Design of the Standard Mark	No. and title of relevant Indian Standard	Verbal description of the design of the Standard Mark
(1)	(2)	(3)
	IS:1-1951 Specification for The National Flag of India (Cotton Khadi)	The monogram of the Indian Standards Institution, consisting of letters ISI, drawn in the exact style and relative proportions as indicated in Column (1), the number designation of the Indian Standard being inscribed in the top side of the monogram as indicated in the design.
	IS:269-1951 Specification for Ordinary, Rapid-Hardening and Low Heat Portland Cement	-do-

(Sd.) D. V. KARMARKAR  
Deputy Director (Marks).  
[No. MDC/11(5).]

**S.R.O. 1255**—In pursuance of sub-regulation (3) of regulation 7 of the Indian Standards Institution (Certification Marks) Regulations, 1955, the Indian Standards Institution notifies that the marking fees per unit for certain products/class of products, details of which are given in the Schedule hereto annexed, have been determined and these fees shall come into force with effect from 1st June 1956.

## THE SCHEDULE

Sl. No.	Products/Class of Products	No. and title of relevant Indian Standard	Unit	Marking Fee per unit
1.	The National Flag of India (Cotton Khadi).	IS: 1-1951 Specification for The National Flag of India (Cotton Khadi).	One square foot* One flag*	Re.-/-/1 Re. -/-/3
2.	Ordinary, Rapid-Hardening and Low Heat Portland Cement.	IS: 269-1951 Specification for Ordinary, Rapid-Hardening and Low Heat Portland Cement.	One thousand tons.	Rs./12/-

\*Square footage basis for all flags except motor car flag and unit flag basis for motor car flag

(Sd.) D. V. KARMAKAR,  
Deputy Director (Marks).

[No. MDC/11(6).]

Delhi, the 18th May 1956

**S.R.O. 1256**—In pursuance of regulation 4 of the Indian Standards Institution (Certification Marks) Regulations, 1955 the Indian Standards Institution hereby notifies that amendments to the Indian Standards given in the Schedule hereto annexed have been issued under the power conferred by sub-regulation (1) of regulation 3 of the said regulations.

## THE SCHEDULE

Sl. No.	No. and title of the Indian Standard amended	No. & date of Gazette Notification in which the establishment of the Indian Standard was notified	No. & date of Amendment	Brief particulars of Amendment	Date of effect of the Amendment
1	2	3	4	5	6
1.	IS : 252-1950 Specification for Caustic Soda, Technical ( <i>Tentative</i> )	S.R.O. 658 dated the 26th March 1955	No. 1 June 1956	The specified values of various characteristics given in Table I have been revised	1st June 1956

Copies of this Amendment are available free of cost from the Indian Standards Institution, 19, University Road, Delhi-8.

(Sd.) D. V. KARMAKAR,  
Deputy Director (Marks),  
[No. MDC/11(4).]

**S.R.O. 1257.**—In pursuance of sub-regulations (2) and (3) of regulation 3 of the Indian Standards Institution (Certification Marks) Regulations, 1955 the Indian Standards Institution hereby notifies that the Indian Standards particulars of which are given in the Schedule hereto annexed have been established during the period 1st to 15th May, 1956.

## THE SCHEDULE

Sl. No.	No. and title of the Indian Standard established	No. and title of the Indian Standard or Standards, if any, superseded by the new Indian Standard.	Brief Particulars
1	2	3	4
1	IS : 646-1956 Specification for Liquid Chlorine, Technical.	..	This standard prescribes the requirements and methods of test for liquid chloride used in the bleaching of pulp and textiles, water sterilization, and chemical manufacture. (Price Re. 1/-).
2	IS : 708-1956 Specification for Potassium Chlorate, Technical	..	This standard prescribes the requirements and methods of test for potassium chlorate used in the explosives, match and fireworks industries. (Price Rs. 2/-).
3	IS : 763-1956 Method for Determination of Colour Fastness of Textile Materials to Peroxide Bleaching	..	This standard prescribes a method for determination of colour fastness of textile materials of all kinds except polyamide, to the action of bleaching baths containing peroxide at concentrations common by employed in textile processing. (Price Re. 1/-).
4	IS : 788-1955 Specification for Ink, Drawing, Waterproof, Coloured, Transparent and Opaque.	..	This standard prescribes the requirements and methods of test for waterproof, coloured transparent or opaque drawing ink. (Price Rs. 1/8/-).
5	IS : 789-1955 Specification for Ink, Drawing, Waterproof Black.	..	This standard prescribes the requirements and methods of test for waterproof and black drawing ink. (Price Rs. 1/8/-).

Copies of all these standards are available for sale with the Indian Standards Institution, 19 University Road, Delhi-8.

(Sd. D. V. KARMAKAR,

(Deputy Director Marks)-

[No. MDC 11(4).]

S. K. PAL, Under Secy.

# MINISTRY OF FOOD AND AGRICULTURE

*New Delhi, the 19th May 1956*

**S.R.O. 1258.**—The following draft of certain amendments to the Vegetable Oils Grading and Marking Rules, 1955, which the Central Government proposes to make in exercise of the powers conferred by section 3 of the Agricultural Produce (Grading and Marking) Act, 1937 (I of 1937), is published as required by the said section for the information of all persons likely to be affected thereby and notice is hereby given that the draft will be taken into consideration on or after the 20th June, 1956.

Any objection or suggestion which may be received from any person in respect of the said draft before the date notified will be considered by the Central Government.

## *Draft Amendments*

### **In the said rules—**

(1) in Schedule IV, in column 5, against "Grade 1 (Edible)" and "Grade 2 (Edible)" for the figures and word "1.4650 to 1.4670", the figures and word "1.4646 to 1.4663" shall be substituted;

### **(2) in Schedule V—**

(a) in column 1 the brackets and word "(Industrial)" occurring after the word and figure "Grade 3" shall be omitted;

(b) after column 9 a new column 10 shall be added with the heading "Moisture and Impurities (Not exceeding per cent.)" and the following percentages shall be entered in that column against the grades mentioned below:—

Against "Refined (Edible)"—"0.2"

Against "Grade 1 (Edible)"—"0.5"

Against "Grade 2 (Edible)"—"1.0"

Against "Grade 3"—"1.0".

### **(3) in Schedule VIII—**

(a) in column 1 the brackets and word "(Edible)" shall be omitted from the grade designation "Raw (Edible)";

(b) in the heading of column 10, after the word "Foots", the words "by volume" shall be inserted;

(c) after column 10, a new column 11 shall be added with the heading "Moisture and impurities (not exceeding per cent)" and the following percentages shall be entered in that column against the grades mentioned below:—

Against "Alkali Refined (Edible)"—"0.2"

Against "Raw"—"0.5".

### **(4) in Schedule IX—**

(a) in column 4, against the grade "Commercial", the figures "40" shall be inserted;

(b) after column 12, a new column 13 shall be added with the heading "Moisture and impurities (Not exceeding per cent)" and the following percentages shall be entered in that column against the grades mentioned below:—

Against "Medicinal"—"0.5"

Against "Firsts special"—"0.5"

Against "Firsts"—"0.5"

Against "Commercial"—"1.0"

(5) in Schedule XI, in column 5, for the figures and word "1.4660 to 1.4720", the figures and word "1.4680 to 1.4690" shall be substituted.

[No. F.25-4/56-AM.]

*Amendment to the Fruit Products Order, 1955*

**S.R.O. 1259.**—In exercise of the powers conferred by Section 3 of the Essential Commodities Act, 1955 (10 of 1955), the Central Government hereby makes the following amendments in the Fruit Products Order, 1955, namely:—

In the said Order, in sub-clause (b) of clause (2), for the words "Licensing Officer", the words "Central Government" shall be substituted.

[No. F.4-7/56-AM.]

V. S. NIGAM, Under Secy.

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(Agriculture)

*New Delhi, the 25th May 1956*

**S.R.O. 1260.**—Whereas it appears to the Central Government to be necessary and expedient so to do for securing the equitable distribution of an essential commodity, namely coal:—

Now, therefore, in exercise of the powers conferred by section 3 of the Essential Commodities Act, 1955 (10 of 1955), the Central Government hereby directs that every person who owns or manages a cotton ginning or pressing factory shall on or before the 30th June, 1956, submit to the Secretary, Indian Central Cotton Committee, 14, Nicol Road, Ballard Estate, Bombay 1, a statement in the form in the schedule appended hereto, containing true and accurate information relating to matters mentioned therein.

SCHEDULE

(Information to be furnished by Ginning and Pressing Factories which do not intend to work during 1956-57 season must clearly mention so at the top of this form).

1. (a) Full name and postal address of the factory.  
(b) Press Mark (in the case of a pressing factory).
2. Name of the railway station at which the factory normally receives coal and the name of the railway on which the station is situated.
3. Normal date of commencement and date of finishing of work in the factory.
4. Number of *bojās* of cotton (lint) of 392 lbs. each ginned (by steam power only) in the factory during 1954-55 season.
5. Number of *bojas* of cotton (lint) of 392 lbs. each ginned (by steam power only) in the factory during 1955-56 season (up to the 31st May, 1956).
6. Number of bales of raw cotton pressed (by steam-power only) in the factory during 1954-55 season.
7. Number of bales of raw cotton pressed (by steam power only) in the factory during 1955-56 season (up to the 31st May, 1956).
8. Type of power plant installed in the factory. (State whether steam, producer gas, diesel or electric. Give details for gin and press separately).
9. Total number of gins installed in the factory. (State whether single, double roller or saw gins).
10. Total number of gins which will work in 1956-57 season by
  - (a) Steam power,
  - (b) Other than steam power.
11. Number of half presses installed in the factory.
12. Number of full presses installed in the factory.
13. Tons of coal consumed by the factory (for ginning and/or pressing cotton only) during the season 1954-55.
14. Tons of firewood or fuel other than coal consumed by the factory (for ginning and/or pressing cotton only) during the season 1954-55.
15. Tons of coal consumed by the factory (for ginning and/or pressing cotton only) during the season 1955-56 (upto the 31st May, 1956).

16. Tons of firewood or fuel other than coal consumed by the factory (for ginning and/or pressing cotton only) during the season 1955-56 (upto the 31st May, 1956).
17. Quantity of coal that the Secretary, Indian Central Cotton Committee, Bombay, recommended that the factory should receive during the 1955-56 season.
18. Quantity of coal sanctioned by the Deputy Coal Controller (Distribution), Calcutta, for 1955-56 season. (Give number and date of sanction).
19. Quantity of coal actually received by the factory as a result of items 17 and 18 above during the 1955-56 season (upto the 31st May, 1956).
20. Tons of coal, if any, purchased by the factory from the market during the 1955-56 season in addition to the quantity shown against item 19.
21. Tons of coal held in stock on the 31st May, 1956.
22. Tons of coal received after the 31st May, 1956, upto the date of making this application, as a result of items 17 and 18.
23. Tons of coal received after the date of this application, against R/R held by the factory as a result of items 17 and 18.
24. Tons of firewood or fuel other than coal held in stock on the date of making this application.
25. Quantity of (i) Kapas (unginned cotton) and (ii) ginned but unpressed cotton actually held in stock in the factory premises on the 31st May, 1956, to be ginned and pressed.
26. Estimated quantity of cotton (in bales of lint) expected to be ginned and/or pressed during the 1956-57 season (including stocks shown against item 25) by *steam power*.
27. Estimated quantity of coal in tons excluding the stocks of fuel shown against items 21, 22, 23 and 28 required by the factory during 1956-57 season. Please also specify the number of instalments and the respective months in which it is desired that the required quantity should reach the factory.
28. Tons of coal and/or firewood not in possession of the factory but in which the factory has any lien or interest on the date of this application.
29. If the factory is a member of any pool, name and address of the Secretary of the pool may be given here.
30. Whether the factory was silent during 1955-56 season. If silent owing to pool, please give name and postal address of the pool Secretary.

NOTE.—Factories which were silent in the 1955-56 season should produce a certificate in original from a local Government Gazetted Officer, to the effect that the factory will work during the 1956-57 season, which should indicate also his opinion regarding the estimated output (ginning and pressing of cotton separately) of the factory.

I declare that the factory is not receiving supplies of coal, under any other priority classes, or under recommendation from any other recommending authorities for the purpose for which the coal quota has now been applied for.

Date.....

Signature of Factory Manager or Proprietor.

NOTE.—(1) In respect of figures of stocks of fuel (*vide* items 21, 22 and 24 above) it is essential that not only stocks in possession of the factory should be shown but also any stocks that it may have a lien on/or that may be held by any of the partner or sister concerns should be shown with details.

(2) Change of proprietorship of the factory must be intimated to the Secretary, Indian Central Cotton Committee, Bombay 1, immediately the change is made.

(3) In case the factory does not require coal after the application has been made or the recommendation has been issued the factory must telegraphically intimate to that effect to the Secretary, Indian Central Cotton Committee, Bombay 1. In the meantime, any coal, which happens to be despatched to the factory



should be taken delivery of by the factory without delay and kept in its possession pending disposal instruction. Should a factory which has applied for the coal fail to take delivery in time, the demurrage charges and other expenses incurred on that account shall be borne by the factory.

[No. F.1-87/56-Com.II.]

MOKAND LALL, Under Secy.

### MINISTRY OF HEALTH

*New Delhi-2, the 21st May, 1956*

**S.R.O. 1261.**—The following draft of certain amendments in the Drugs Rules, 1945 which the Central Government, after consultation with the Drugs Technical Advisory Board, proposes to make in exercise of the powers conferred by sections 12 and 33 of the Drugs Act, 1940 (XXIII of 1940), is published as required by the said sections, for the information of persons likely to be affected thereby and notice is hereby given that the said draft will be taken into consideration on or after the 21st August, 1956.

Any objections or suggestions which may be received from any person with respect to the said draft, before the date so specified, will be considered by the Central Government.

#### *Draft Amendment*

In the said Rules:—

After rule 121, the following shall be inserted, namely:—

(1) 121-A. *Test for absence of pyrogens.*—Solution of substances intended for parenteral administration in large volumes (10 ml. or more at a time) shall be pyrogen-free and tested for absence of pyrogens. If water or any other aqueous solvent is supplied along with the substances for preparing such solutions, it shall also be pyrogen-free and tested for absence of pyrogens.

(2) in part IX of Schedule F—after paragraph 3, the following shall be inserted, namely—

3-A. “The water used in the manufacture of parenteral preparations shall comply with the tests for sterility and for absence of pyrogens.”

[No. F.1-50/55-D.]

*New Delhi, the 25th May, 1956*

**S.R.O. 1262.**—The Government of the State of Assam having nominated in exercise of the powers conferred by clause (h) of section 3 of the Pharmacy Act, 1948 (8 of 1948), Dr. U. C. Bordoloi, M.B. (Cal.), D.R.O.G. (Lond.), D.G.O., L.M. (Dublin), Director of Health Services, Assam, as a member representing it in the Pharmacy Council of India, in the vacancy caused by the resignation of Dr. J. K. Saikia, the following amendment is made in the notification of the Government of India in the Ministry of Health, No. F.7-26/53-DS, dated the 23rd June, 1954, namely:—

In the said notification, for the entry “30. J. K. Saikia, M.B., D.T.M., A.M.S. (Sr.), Director of Health Services, Assam”, the entry “30. Dr. U. C. Bordoloi, M.B. (Cal.), D.R.O.G. (Lond.), D.G.O., L.M. (Dublin), Director of Health Services, Assam”, shall be substituted.

[No. F.7-22/56-D.]

T. V. ANANTANARAYANAN, Under Secy.

*New Delhi-2, the 26th May 1956*

**S.R.O. 1263.**—In exercise of the powers conferred by clause (a) of sub-section (i) of section 3 of the Indian Medical Council Act, 1933 (XXVII of 1933) and in supersession of the notification of the Government of India in the Ministry of Health No. F.5-40/56-MI, dated the 8th March, 1956, published with S.R.O. No. 649 in the Gazette of India, dated the 17th March, 1956, the Central Government has nominated Dr. U. C. Bordoloi, M.B., D.R.C.O.G. (London), D.G.O.L.M. (Dublin), Director of Health Services, Assam, to be a member of the Medical Council of India vice Dr. J. K. Saikia, M.B., resigned with effect from the 19th April, 1956.

[No. F.5-40/56-MI.]

KRISHNA BIHARI, Under Secy.

# MINISTRY OF TRANSPORT

(Transport Wing)

## MERCHANT SHIPPING

*New Delhi, the 22nd May 1956*

**S.R.O. 1264.**—The following draft of certain rules which it is proposed to make in exercise of the powers conferred by sub-section (1) of section 191 and sub-section (1) of section 216A of the Indian Merchant Shipping Act, 1923 (XXI of 1923), read with clause (1) of sub-section (1A) of the said section 216A, is published for the information of all persons likely to be affected thereby; and notice is hereby given that the said draft will be taken into consideration after the 26th June, 1956.

Any objections or suggestions which may be received from any person with respect to the said draft before the date specified will be considered by the Central Government.

### DRAFT RULES

1. (1) These Rules may be called the Indian Merchant Shipping (Fire Appliances) Rules, 1956.

(2) In these rules, unless the context otherwise requires—

- (a) "crew space" means accommodation provided exclusively for the use of the crew;
- (b) "international voyage" means a voyage from a country to which the Safety Convention applies to a port outside such country, or conversely; and for this purpose every territory for the international relations of which a Contracting Government is responsible or for which the United Nations are the administering authority is regarded as a separate country;
- (c) "length", in relation to a ship, means the registered length;
- (d) "passenger space" means space provided for the use of passengers;
- (e) "passenger steamer" means a steamer carrying more than 12 passengers;
- (f) "portable fire extinguisher" in relation to a carbon dioxide fire extinguisher, means a fire extinguisher with a capacity of not more than 15 lb. of carbon dioxide, and, in relation to any other fire extinguisher, means a fire extinguisher with a capacity of not more than 3 gallons of fluid;
- (g) "short international voyage" means an international voyage in the course of which a ship is not more than 200 miles from a port or place in which the passengers and crew could be placed in safety, and which does not exceed 600 miles in length between the last port of call in the country in which the voyage begins and the final port of destination.
- (h) "tanker" means a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of an inflammable nature;
- (i) "tons" means gross tons.

2. These rules shall apply to—

- (a) all ships registered in India;
- (b) other ships while they are within any port in India;

Provided that these rules shall not apply to—

- (i) a ship by reason of her being within a port in India, if she would not have been in any such port but for stress of weather or any other circumstance that neither the Master nor the owner nor the charterer (if any) of the ship could have prevented or forestalled;
- (ii) pleasure yachts which are not passenger steamers and do not exceed 15 tons burden;
- (iii) ships plying under the Inland Steam-vessels Act, 1917 (I of 1917).

### CLASSIFICATION OF SHIPS

3. For the purpose of these rules, ships shall be arranged in the same classes in which ships are arranged for the purpose of the Indian Merchant Shipping (Life-Saving Appliances) Rules, 1956, and any reference in these rules to a ship of any class shall be construed accordingly.

## PASSENGER SHIPS

## Ships of Class I

*Fire Petrol, Detection and Alarm Systems*

4. (1) In every ship of Class I an efficient patrol system shall be maintained so that any outbreak of fire may be promptly detected. Manual fire alarms shall be fitted throughout the passenger spaces and crew spaces which will enable the fire patrol to give an alarm immediately to the bridge or fire control station.

(2) In every ship of Class I a fire alarm or fire detection system shall be provided which will be capable of indicating, at one or more points in the ship so as to come rapidly to the notice of the master and crew, the presence and position of fire in any part of the ship which is inaccessible to the fire patrol.

(3) The Central Government may exempt any ship from the requirements of sub-rule (2) if it is satisfied that to require compliance therewith would be unreasonable on account of the short duration of the voyages on which the ship is engaged.

*Passenger and Crew Spaces*

5. Every ship of Class I shall be provided with appliances whereby at least two powerful jets of water can be rapidly and simultaneously directed upon any part of the passenger spaces and crew spaces when all watertight doors and all doors in the bulkheads constructed in compliance with sub-rule (2) of rule 60 of the Indian Merchant Shipping (Construction and Survey of Passenger Steamers) Rules, 1956, are closed. In addition, on each deck in each of these spaces there shall be provided at least two portable fluid fire extinguishers. When passengers are carried in any enclosed spaces above the bulkhead deck, there shall be at least one such extinguisher on each side of the ship in such spaces.

*Cargo Spaces and Store Rooms*

6. (1) Every ship of Class I shall be provided with appliances whereby at least two powerful jets of water can be rapidly and simultaneously directed into any cargo space or store room.

(2) Every ship of Class I of 1,000 tons or over shall be provided with appliances whereby fire-smothering gas can be rapidly conveyed by a permanent piping system into any compartment appropriated for the carriage of cargo. The volume of free gas shall be at least equal to 30 per cent. of the gross volume of the largest hold in the ship which is capable of being effectively closed: provided that steam may be substituted for fire-smothering gas in any ship in which there are available boilers capable of evaporating 1 lb. of steam per hour for each 12 cubic feet of the gross volume of the largest hold in the ship.

(3) The Central Government may exempt any ship from the requirements of sub-rule (2) if it is satisfied that to require compliance therewith would be unreasonable on account of the short duration of the voyages on which the ship is engaged.

*Machinery Spaces: General*

7. Every ship of Class I shall be provided with appliances whereby at least two powerful jets of water can be rapidly and simultaneously directed into any part of the coal bunker spaces, if any, and the machinery spaces.

*Machinery Spaces: Ships fitted with Main or Auxiliary Oil-fired Boilers*

3. (1) Every ship of Class I fitted with main or auxiliary oil-fired boilers, shall be provided in the machinery spaces with—

(a) at least two fire hydrants, one on the port side and one on the starboard side, and

(b) for each such hydrant, a fire hose with a nozzle suitable for spraying water on oil.

(2) In each firing space of every ship of Class I fitted with main or auxiliary oil-fired boilers a receptacle shall be provided which shall contain at least 10 cubic feet of sand, or other dry material suitable for quenching oil fires. Scoops shall be provided for distributing the contents of the receptacle.

(3) In each firing space in every such ship and in each compartment which contains the whole or part of the oil fuel installation, at least two portable fire extinguishers shall be provided which shall be capable of discharging froth or other substance suitable for quenching oil fires.

(4) A froth installation, complying with the requirements specified in the First Schedule to these Rules, shall be provided in every such ship whereby froth can be rapidly discharged and distributed over each boiler room, and over any space which contains the whole or part of the oil fuel installation. The froth available for discharge shall be sufficient in quantity to cover to a depth of 6 inches the largest single area over which oil fuel may spread in the event of leakage. If the engine room and boiler room are not separated from each other by a bulkhead and fuel oil may drain from the boiler room into the engine room bilges, the engine room and boiler room shall, for the purpose of this sub-rule be regarded as a single area.

The aforesaid appliances shall be capable of being controlled from an easily accessible position which is not likely to be cut off in the event of fire. The Central Government may exempt any ship from the requirements of this sub-rule if it is satisfied that the boiler room and the spaces containing the oil fuel installation are adequately protected by a permanent piping system for the discharge of smothering-gas, or water at high pressure.

(5) One froth fire extinguisher of at least 30 gallons capacity shall be provided in every such ship with one boiler room, and two such extinguishers shall be provided in every such ship with more than one boiler room. Every such extinguisher shall be provided with a reel of hose capable of reaching every part of the boiler room and of any space which contains the whole or part of the oil fuel installation. A carbon dioxide extinguisher of at least 100 lb. capacity may be provided in lieu of such froth fire extinguisher.

#### *Engine Rooms: Motor Ships*

9. Every ship of Class I propelled by internal combustion machinery shall be provided in the compartment containing that machinery with at least—

- (a) two fire hydrants, one on the port side and one on the starboard side;
- (b) for each such hydrant, a fire hose with a nozzle suitable for spraying water on oil;
- (c) one froth fire extinguisher of at least 30 gallons capacity or a carbon dioxide fire extinguisher of at least 100 lb. capacity, so however that in any ship in which fire extinguishers are provided in a boiler room in accordance with sub-rule (5) of rule 8, the extinguisher required by this clause shall not be required to exceed 10 gallons in capacity in the case of a froth extinguisher, or 35 lb. in the case of a carbon dioxide extinguisher; and
- (d) one portable froth fire extinguisher for each 1,000 B.H.P. of the said machinery or fraction thereof, but in no event less than 2 such extinguishers; provided that no more than 6 such extinguishers shall be required in any one compartment.

#### *Fire Pumps*

10. (1) Every ship of Class I of 4,000 tons or over shall be provided with at least 3 fire pumps operated by power, and every such ship of under 4,000 tons with at least 2 such fire pumps.

(2) In every ship of Class I fitted with main or auxiliary oil-fired boilers or internal combustion propelling machinery, the arrangements of sea connection pumps and the sources of power for operating them shall be such as will ensure that a fire in any one compartment will not put all the fire pumps out of action.

#### *Water Pipes, Hydrants and Fire Hoses*

11. Every ship of Class I shall be provided with water pipes and hydrants. The diameter of the water pipes shall be sufficient to enable an adequate supply of water to be provided for the simultaneous operation of at least two fire hoses and for the projection thereby of two powerful jets of water. The number and position of the hydrants shall be such that at least two such jets may be directed into any part of the ship by means of two fire hoses each not exceeding 60 feet in length, each jet being supplied from a separate hydrant. At least one fire hose shall be provided for each hydrant.

*Firemen's Outfits*

12. Every ship of Class I shall be provided with at least two firemen's outfits each consisting of—

- (a) a safety lamp;
- (b) a fireman's axe;
- (c) (i) a breathing apparatus; or
- (ii) a smoke helmet; or
- (iii) a smoke mask, complying with the requirements respectively specified in the Sixth Schedule to these Rules.

The outfits shall be kept in widely separated places.

*Portable Drilling Machine*

13. Every ship of Class I shall be provided with a portable electric drilling machine to provide emergency means of access to fires through decks, casings or bulkheads.

*Ships of Class II*

14. Rules 4 to 13 inclusive of these rules shall apply to ships of Class II as they apply to ships of Class I.

*Ships of Class III*

15. Rules 4 to 13 inclusive of these rules shall apply to ships of Class III as they apply to ships of Class I.

*Ships of Class IV*

16. Rules 4 to 13 inclusive of these rules shall apply to ships of Class IV as they apply to ships of Class I.

*Ships of Class V*

17. Sub-rule (1) of rule 4 and rules 5 to 13 inclusive of these rules shall apply to ships of Class V as they apply to ships of Class I.

*Ships of Class VI**Passenger and Crew Spaces*

18. (1) Every ship of Class VI shall be provided with appliances whereby a powerful jet of water can be rapidly directed upon any part of the passenger spaces and crew spaces.

(2) Every such ship shall be provided with at least one portable fluid fire extinguisher in each of the passenger spaces above the upper deck and with at least two extinguishers in each of the crew spaces, and of the passenger spaces below that deck.

*Cargo Spaces and Store Rooms*

19. Every ship of Class VI shall be provided with appliances whereby a powerful jet of water can be rapidly directed into any cargo space or store room.

*Machinery Spaces, etc.*

20. (1) Every ship of Class VI shall be provided with appliances whereby a powerful jet of water can be rapidly directed into any part of the coal bunker spaces, boiler rooms and engine rooms.

(2) Every ship of Class VI fitted with oil-fired boilers or internal combustion propelling machinery shall be provided in the machinery spaces with at least one fire hydrant and fire hose with a nozzle suitable for spraying water on oil.

*Machinery Spaces: Ships fitted with main or auxiliary oil-fired boilers*

21. (1) Every ship of Class VI fitted with main or auxiliary oil-fired boilers shall be provided in each firing space with a receptacle which shall contain an adequate quantity of sand, or other dry material suitable for quenching oil fires. Scoops shall be provided for distributing the contents of the receptacle.

(2) Two portable fire extinguishers, capable of discharging froth or another substance suitable for quenching oil fires, shall be provided in the boiler room of every such ship and in each machinery space therein which contains a part of the oil fuel installation.

(3) A froth installation, complying with the requirements specified in the First Schedule to these rules, shall be provided in every such ship whereby froth can be rapidly discharged and distributed over each boiler room, and over any

space which contains the whole or part of the oil fuel installation. The froth available for discharge shall be sufficient in quantity to cover a depth of 6 inches in the largest single area over which oil fuel may spread in the event of leakage. If the engine room and boiler room are not separated from each other by a bulkhead and fuel oil may drain from the boiler room into the engine room bilges, the engine room and boiler room shall, for the purpose of this sub-paragraph, be regarded as a single area. The aforesaid appliances shall be capable of being controlled from an easily accessible position which is not likely to be cut off in the event of fire. The Central Government may exempt any ship from the requirements of this sub-rule if it is satisfied that the boiler room and the spaces containing the oil fuel installation are adequately protected by a permanent piping system for the discharge of smothering-gas or water at high pressure.

(4) Two froth fire extinguishers each of at least 10 gallons capacity shall be provided in the machinery spaces of every such ship. Every such extinguisher shall be provided with a fire hose capable of reaching every part of the boiler room and of any space which contains a part of the oil fuel installation. A carbon dioxide fire extinguisher of at least 35 lb. capacity may be provided in lieu of a froth fire extinguisher of 10 gallons capacity.

#### *Engine Rooms: Motor Ships*

22. Every ship of Class VI propelled by internal combustion machinery shall be provided in each machinery compartment with at least—

- (a) one froth fire extinguisher of at least 10 gallons capacity or one carbon dioxide fire extinguisher of at least 35 lb. capacity;
- (b) one portable froth fire extinguisher for each 1,000 B.H.P. or fraction thereof of the said machinery, but in no event less than 2 such extinguishers; provided that not more than 6 such extinguishers shall be required in any ship.

#### *Water Pipes, Hydrants and Fire Hoses*

23. Every ship of Class VI shall be provided with water pipes and hydrants. The diameter of the water service pipes shall be sufficient to enable an adequate supply of water to be provided for the operation of at least one fire hose and the projection thereby of a powerful jet of water. The number and position of the fire hydrants shall be such that at least one such jet may be directed into any part of the ship by means of a fire hose not exceeding 60 feet in length. At least one fire hose shall be provided for each hydrant.

#### *Fire Pumps*

24. (1) Every ship of Class VI shall be provided with at least one fire pump operated by power.

(2) Every ship of Class VI fitted with oil-fired main or auxiliary boilers or internal combustion propelling machinery shall be provided with an additional fire pump, which shall not be required to be operated by power and shall be permanently connected to the water pipes referred to in rule 23. Such pump and its source of power, if any, shall not be situated in the same compartment as the pump required by sub-rule (1). If a hand pump is provided in compliance with this sub-rule, it shall be of the rotary type. A sea suction valve for use with the additional pump shall be provided and shall be capable of being controlled from outside the machinery space.

#### *Ships of Class VII*

25. Every ship of Class VII shall be provided with—

- (a) one pump and one fire hose whereby a powerful jet of water can be rapidly directed into any part of the ship;
- (b) sufficient portable fire extinguishers to ensure that at least one is available for immediate use in each compartment of the crew spaces and of the passenger spaces, if any;
- (c) fire buckets in accordance with the following table—

Length of ship in feet	Minimum number of buckets
50 or under . . . . .	2, one of which shall be fitted with a lanyard.
Over 50 but not over 70 . . . . .	3, two of which shall be fitted with lanyards.
Over 70 . . . . .	4, two of which shall be fitted with lanyards.

This rule shall not apply to wooden ships of primitive build.

## NON-PASSENGER SHIPS

*Ships of Class VIII**Cargo Spaces*

26. (1) Every ship of Class VIII of 2,000 tons or over shall be provided with appliances whereby fire-smothering gas can be rapidly conveyed by a permanent piping system into any compartment appropriated for the carriage of cargo. The volume of free gas available shall be at least equal to 30 per cent. of the gross volume of the largest hold in the ship which is capable of being effectively closed:

Provided that—

- (a) steam may be substituted for fire-smothering gas in any ship in which there are available boilers capable of evaporating 1 lb. of steam per hour for each 12 cubic feet of the gross volume of the largest hold in the ship;
  - (b) in the cargo spaces of any tanker a froth installation, complying with the First Schedule to these Rules, may be substituted for a system for conveying fire-smothering gas.
- (2) The Central Government may exempt any ship other than a tanker, from the requirements of sub-rule (1) if it is satisfied that—
- (a) the holds therein are provided with steel hatch covers and effective means of closing all ventilators and other openings leading to the holds; or
  - (b) the ship is constructed for, and employed solely in the carriage of ore or coal; or
  - (c) to require compliance with the requirements of the aforesaid sub-rule would be unreasonable on account of the short duration of the voyages on which the ship is engaged.

*Fire Hoses and Pumps*

27. (1) Every ship of Class VIII of 1,000 tons or over shall be provided with appliances whereby at least two powerful jets of water can be rapidly and simultaneously directed on any part of the ship. Such appliances shall include two fire hoses and a spare fire hose 30 feet in length, together with two pumps operated by power.

(2) Every ship of Class VIII of under 1,000 tons shall be provided with appliances whereby at least one powerful jet of water can be rapidly directed into any part of the ship. Such appliances shall include one fire hose and a spare fire hose 30 feet in length, together with two pumps operated by power.

(3) If, in any ship of Class VIII, fitted with main or auxiliary oil-fired boilers or with internal combustion propelling machinery, a fire in any one compartment might put out of action every fire pump provided in the ship, alternative means for extinguishing the fire shall be provided.

*Portable Fire Extinguishers*

28. Every ship of Class VIII shall be provided with a sufficient number of portable fire extinguishers to ensure that at least one such extinguisher will be readily available for use in every compartment of the crew spaces and passenger spaces, if any. The number of such extinguishers shall be not less than five in a ship of 1,000 tons or over and not less than three in a ship of under 1,000 tons.

*Firemen's Outfits*

29. (1) Every ship of Class VIII of 4,000 tons or over shall be provided with at least two firemen's outfits each consisting of—

- (a) a safety lamp;
- (b) a fireman's axe;
- (c) (i) a breathing apparatus; or (ii) a smoke helmet; or (iii) a smoke mask, complying with the requirements respectively specified in the Sixth Schedule to these Rules.

The outfits shall be kept in widely separated places.

(2) Every ship of Class VIII of under 4,000 tons shall be provided with at least one such outfit.

*Portable Drilling Machine*

30. Every ship of Class VIII on which a supply of electrical energy is available, other than a tanker, shall be provided with a portable electric drilling machine to provide emergency means of access to fires through decks, casings or bulkheads.

*Machinery Spaces: Ships with main or auxiliary oil-fired boilers*

31. (1) Every ship of Class VIII fitted with main or auxiliary oil-fired boilers shall be provided in the machinery spaces with—

- (a) at least two fire hydrants, one on the port side and one on the starboard side, and
- (b) for each such hydrant a fire hose with a nozzle suitable for spraying water on oil.

(2) In each firing space of every ship of Class VIII fitted with main or auxiliary oil-fired boilers a receptacle shall be provided which shall contain at least 10 cubic feet of sand, or other dry material suitable for quenching oil fires. Scoops shall be provided for distributing the contents of the receptacle.

(3) In each firing space in every such ship and in each compartment therein containing the whole or part of the oil fuel installation, at least two portable fire extinguishers shall be provided which shall be capable of discharging froth or another substance suitable for quenching an oil fire.

In addition, one such extinguisher of at least 10 gallons capacity, or a carbon dioxide extinguisher of at least 35 lb. capacity shall be provided in each boiler room if the number of burners therein is five or more. If the number of burners in a boiler room is less than five, there shall be provided therein one froth fire extinguisher of at least 2 gallons capacity for each burner.

(4) A froth installation, complying with the requirements specified in the First Schedule to these Rules, shall be provided in every such ship whereby froth can be rapidly discharged and distributed over each boiler room, and over any space which contains the whole or part of the oil fuel installation. The froth available for discharge shall be sufficient in quantity to cover to a depth of 6 inches the largest single area over which oil fuel may spread in the event of leakage. If the engine room and boiler room are not separated from each other by a bulkhead and fuel oil may drain from the boiler room into the engine room bilges, the engine room and boiler room shall, for the purpose of this subparagraph, be regarded as a single area. The aforesaid appliances shall be capable of being controlled from a readily accessible position which is not likely to be cut off in the event of fire. The Central Government may exempt any ship from the requirements of this sub-rule if it is satisfied that the boiler room and the spaces containing the oil fuel installation are adequately protected by—

- (a) a permanent piping system for the discharge of smothering-gas, steam or water at high pressure; and
- (b) if such system discharges steam and the ship is fitted only with water-tube boilers, a froth fire extinguisher of at least 30 gallons capacity or a carbon dioxide extinguisher of at least 100 lb. capacity.

*Engine Rooms: Motor Ships*

32. In every ship of Class VIII fitted with internal combustion propelling machinery, the following fire appliances shall be provided in the compartment containing that machinery:—

- (a) two fire hydrants, one on the port side and one on the starboard side;
- (b) for each such hydrant, a fire hose with a nozzle suitable for spraying water on oil;
- (c) two froth fire extinguishers each of at least 10 gallons capacity or two carbon dioxide fire extinguishers each of at least 35 lb. capacity, provided that only one such extinguisher shall be required in any ship in which a froth fire extinguisher of at least 10 gallons capacity or a carbon dioxide extinguisher of at least 35 lb. capacity is provided in compliance with sub-rule (3) or (4) of rule 31; and



- (d) portable fire extinguishers, capable of discharging froth or another substance suitable for quenching oil fires, in accordance with the following table—

B.H.P. of Main Engines	Number of Portable Extinguishers
Not over 1,000	2
Over 1,000 but not over 2,000	3
Over 2,000 but not over 3,000	4
Over 3,000 but not over 4,000	5
Over 4,000	6

*Ships of Class IX*

*Ships of 1,000 tons and over*

33. Rules 27 to 32, inclusive, of these Rules shall apply to ships of Class IX of 1,000 tons and over as they apply to ships of Class VIII.

*Ships of 500 tons or over but under 1,000 tons*

34. (1) This Rule applies to ships of Class IX of 500 tons or over but under 1,000 tons.

(2) Every ship to which this Rule applies shall be provided with at least—

- (a) one pump operated by power and one fire hose whereby a powerful jet of water can be rapidly directed into any part of the ship, together with a spare fire hose 30 feet in length;
- (b) three portable fire extinguishers readily accessible for use in the crew spaces and passenger spaces, if any; and
- (c) a fireman's outfit consisting of a safety lamp, a fireman's axe, and (i) a breathing apparatus; or (ii) a smoke helmet; or (iii) a smoke mask, complying with the requirements respectively specified in the Sixth Schedule to these Rules.

(3) Every ship to which this Rule applies, being a ship fitted with main or auxiliary oil-fired boilers or internal combustion propelling machinery, shall be provided in the machinery spaces with a hydrant and a fire hose with a nozzle suitable for spraying water on oil.

(4) (a) Every ship to which this Rule applies, being a ship fitted with oil-fired boilers, shall be provided in each boiler room with—

- (i) a receptacle containing an adequate quantity of sand, or other dry material suitable for quenching oil fires;
- (ii) a scoop for distributing the contents of the receptacle.

(b) In each firing space in every such ship and in each compartment therein containing the whole or part of the oil fuel installation, at least two portable fire extinguishers shall be provided which shall be capable of discharging froth or some other substance suitable for quenching an oil fire. In addition one such extinguisher of at least 10 gallons capacity or a carbon dioxide extinguisher of at least 35 lb. capacity shall be provided in each boiler room if the number of burners therein is five or more. If the number of burners in a boiler room is less than five there shall be provided therein one froth extinguisher of at least two gallons capacity for each burner.

(c) A froth installation, complying with the requirements specified in the First Schedule to these Rules, shall be provided in every such ship whereby froth can be rapidly discharged and distributed over each boiler room, and over any space which contains the whole or part of the oil fuel installation. The froth available for discharge shall be sufficient in quantity to cover to a depth of 6 inches the largest single area over which oil fuel may spread in the event of leakage. If the engine room and boiler room are not separated from each other by a bulkhead and fuel oil may drain from the boiler room into the engine room bilges, the engine room and boiler room shall, for the purpose of this clause be regarded as a single area. The aforesaid appliances shall be capable of being controlled from a readily accessible position which is not likely to be cut off in the event of fire. The Central Government may exempt any ship from the requirements of this clause if it is satisfied that the boiler room and the spaces containing the oil fuel installation are adequately protected by—

- (i) a permanent piping system for the discharge of smothering-gas, steam, or water at high pressure;

- (ii) if such system discharges steam and the ship is fitted only with water-tube boilers, a froth fire extinguisher of at least 30 gallons capacity or a carbon dioxide extinguisher of at least 100 lb. capacity.

(5) Every ship to which this rule applies, being a ship fitted with internal combustion propelling machinery, shall be provided in the machinery spaces with portable fire extinguishers capable of discharging froth or another substance for quenching oil fires, in accordance with the following table—

B.H.P. of Main Engines	Number of Portable Extinguishers
Not over 100	3
Over 100 but not over 150	4
Over 150 but not over 200	5
Over 200 but not over 250	6
Over 250	7

Provided that, for the number of portable fire extinguishers set forth in the foregoing table, there may be substituted two such extinguishers as are referred to in the foregoing provision, and either—

- (a) one froth fire extinguisher of at least 10 gallons capacity; or  
(b) one carbon dioxide fire extinguisher of at least 35 lb. capacity.

*Ships of 150 tons or over but under 500 tons*

35. (1) This rule applies to ships of Class IX of 150 tons or over but under 500 tons.

(2) Every ship to which this rule applies shall be provided with at least—

- (a) one pump operated by power and one fire hose whereby a powerful jet of water can be rapidly directed into any part of the ship;  
(b) four fire buckets and a fireman's axe.

(3) Every ship to which this rule applies, being a ship fitted with main or auxiliary oil-fired boilers or internal combustion propelling machinery, shall be provided with a nozzle suitable for spraying water on oil by means of the fire hose referred to in sub-rule (2).

(4) (a) Every ship to which this rule applies, being a ship fitted with main or auxiliary oil-fired boilers, shall be provided in the machinery space with—

- (i) a receptacle containing an adequate quantity of sand, or other dry material suitable for quenching oil fires;  
(ii) a scoop for distributing the contents of the receptacle.

(b) The boiler room in every such ship and each compartment in the ship which contains the whole or part of the oil fuel installation, shall be provided with at least two portable fire extinguishers capable of discharging froth or another substance suitable for quenching oil fires.

(c) A froth installation, complying with the requirements specified in the First Schedule to these Rules, shall be provided in every such ship whereby froth can be rapidly discharged and distributed over each boiler room, and over any space which contains the whole or part of the fuel installation. The froth available for discharge shall be sufficient in quantity to cover to a depth of 6 inches the largest single area over which fuel oil may spread in the event of leakage. If the engine room and boiler room are not separated from each other by a bulk-head and fuel oil may drain from the boiler into the engine room bilges, the engine room and boiler room shall, for the purpose of this clause, be regarded as a single area. The aforesaid appliances shall be capable of being controlled from a readily accessible position which is not likely to be cut off in the event of fire. The Central Government may exempt any ship from the requirements of this clause if it is satisfied that the boiler room and the spaces containing the oil fuel installation are adequately protected by a permanent piping system for the discharge of smotherings, steam, or water at high pressure.

(5) Every ship to which this rule applies, being a ship fitted with internal combustion propelling machinery, shall be provided in the engine room with—

- (a) a receptacle containing an adequate quantity of sand, or other dry material suitable for quenching oil fires;

- (b) a scoop for distributing the contents of the receptacle;
- (c) at least two portable fire extinguishers capable of discharging froth or another substance suitable for quenching oil fires.

*Ships of under 150 tons*

36. (1) This rule applies to ships of Class IX of under 150 tons.

(2) Every ship to which this rule applies shall be provided with—

- (a) one pump and one fire hose whereby a powerful jet of water can be rapidly directed into any part of the ship; and
- (b) at least three fire buckets and a fireman's axe.

Provided that in open ships fitted with internal combustion propelling machinery two fire buckets with lanyards attached may be substituted for a pump and a fire hose. Such buckets shall be additional to the buckets referred to in clause (b).

(3) Every ship to which this rule applies, being a ship fitted with main or auxiliary oil-fired boilers or internal combustion propelling machinery, shall be provided with—

- (a) a receptacle containing an adequate quantity of sand, or other dry material suitable for quenching oil fires;
- (b) a scoop for distributing the contents of the receptacle;
- (c) if the ship is provided with a fire hose, a nozzle suitable for spraying water on oil by means of that hose;
- (d) at least two portable fire extinguishers capable of discharging froth or another substance suitable for quenching oil fires.

*Ships of Class X*

37. (1) Rules 33 to 36, inclusive, of these rules shall apply to ships of Class X.

(2) The Central Government may exempt any ship of Class X from any of the requirements of these rules.

*Ships of Class XI*

38. (1) Every ship of Class XI shall be provided with—

- (a) One pump operated by power and one fire hose whereby a powerful jet of water can rapidly be directed into any part of the ship; provided that a hand pump may be substituted for a power pump in ships of under 70 feet in length and in ships in which sails are the main means of propulsion; and
- (b) fire buckets in accordance with the following table—

Length of Ship in Feet	Minimum No. of Buckets
50 or under	2, one of which shall be fitted with a lanyard
over 50 but not 70	3, two of which shall be fitted with lanyard
Over 70	4, two of which shall be fitted with lanyard

(2) Every ship of Class XI fitted with oil-fired boilers and every decked ship of Class XI fitted with internal combustion propelling machinery shall be provided with a nozzle suitable for spraying water on oil by means of the fire hose referred to in sub-rule (1).

(3) Every ship of Class XI fitted with main or auxiliary oil-fired boilers shall be provided in the boiler room with—

- (a) a receptacle containing an adequate quantity of sand, or other dry material suitable for quenching oil fires;
- (b) a scoop for distributing the contents of the receptacle;
- (c) at least two portable fire extinguishers capable of discharging froth or another substance suitable for quenching oil fires; and
- (d) a froth installation, complying with the requirements specified in the First Schedule to these rules, whereby froth can be rapidly discharged and distributed over each boiler room, and over any space which contains the whole or part of the fuel installation. The froth

available for discharge shall be sufficient in quantity to cover to a depth of 6 inches the largest single area over which oil fuel may spread in the event of leakage. If the engine room and boiler room are not separated from each other by a bulkhead and fuel oil may drain from the boiler room into the engine room bilges, the engine room and boiler room shall, for the purpose of this clause, be regarded as a single area. The aforesaid appliances shall be capable of being controlled from a readily accessible position which is not likely to be cut off in the event of fire. The Central Government may exempt any ship from the requirements of this clause if it is satisfied that the boiler room and the spaces containing the oil fuel installation are adequately protected by a permanent piping system for the discharge of smothering-gas, steam, or water at high pressure.

(4) Every ship of Class XI fitted with internal combustion propelling machinery shall be provided in the machinery space with portable fire extinguishers capable of discharging froth or another substance suitable for quenching oil fires. The number of such extinguishers shall be in accordance with the following table—

B.H.P. of Main Engines	Number of Extinguishers
Not over 500	2
Over 500 but not over 1,000	3
Over 1,000 but not over 2,000	4

(5) The Central Government may exempt any ship of Class XI from any of the requirements of these rules.

#### *Ships of Class XII*

39. Rule 25 of these Rules shall apply to ships of Class XII as it applies to ships of Class VII.

#### *Ships of Class XIII*

40. (1) Every ship of Class XIII of 70 feet in length and over shall be provided with a pump and a fire hose whereby a powerful jet of water can rapidly be directed into any part of the ship.

(2) Every ship of Class XIII shall be provided with fire buckets in accordance with the following table—

Length in Feet	Minimum No. of Buckets
50 or under	2, one of which shall be fitted with a lanyards
Over 50 but not over 70	3, two of which shall be fitted with lanyards.
Over 70	4, two of which shall be fitted with lanyards.

(3) Every ship of Class XIII of 70 feet in length and over and fitted with internal combustion propelling machinery shall be provided with a nozzle suitable for spraying water on oil by means of the fire hose referred to in sub-rule (1)

(4) Every ship of Class XIII fitted with internal combustion propelling machinery shall be provided with portable fire extinguishers capable of discharging froth or another substance suitable for quenching oil fires. The number of such extinguishers shall be in accordance with the following table—

B.H.P. of Main Engines	Number of Extinguishers
Not over 500	2
Over 500	3

(5) Every ship of Class XIII in which sails are the only means of propulsion shall carry not less than two portable fire extinguishers.

(6) The Central Government may exempt any ship of Class XIII from any of the requirements of these rules.

## GENERAL

*Power Pumps*

41. (1) Every pump required by these rules to be operated by power shall be operated by means other than the ship's main engines, and shall not be used for pumping oil.

(2) Every such pump shall be capable of producing a throw of at least forty feet at every nozzle, other than a spray nozzle, when used with any of the fire hoses and nozzles provided in compliance with these Rules.

(3) Escape valves shall, whenever necessary, be provided in connection with every such pump and shall be so placed and adjusted as to prevent excessive pressure in any part of the water pipes served by the pump.

(4) In every ship required by these rules to be provided with pumps operated by power, the total pumping capacity of the pumps provided in compliance with that requirement shall not be less than two-thirds of the total pumping capacity of the bilge pumps provided in the ship.

*Water Pipes and Hydrants*

42. (1) All water pipes and fire hydrants provided in compliance with these rules shall be so placed that fire hoses may easily be coupled to them. In ships which may carry deck cargo, the hydrants shall be so placed that the deck cargo will not hinder access to them, and the water pipes shall be protected from damage by the cargo.

(2) The water pipes shall not be made of cast iron, and, if made of iron or steel, shall be galvanised.

(3) Cocks or valves shall be fitted to the water pipes and shall be so arranged that any fire hoses coupled thereto may be removed while fire pumps are in operation.

*Fire Hoses, Nozzles, etc.*

43. (1) Fire hoses provided in compliance with these rules shall not exceed 60 feet in length and shall be made of leather, seamless hemp, closely woven flax canvas, or other suitable material and shall be provided with couplings, conductors and other necessary fittings, and with a plain nozzle of not less than  $\frac{1}{4}$  inch diameter in addition to any spray-nozzle required by these rules.

(2) Every fire hose provided in compliance with these rules, together with the tools and fittings necessary for its use, shall be kept in a conspicuous position near the water hydrants or connections with which it is intended to be used.

(3) Except in ships of Class VI and in ships of Classes XI and XIII fire hoses provided in compliance with these rules shall not be used for any purpose other than extinguishing fire or testing with fire appliances.

*Fire Buckets*

44. (1) Every fire bucket provided in compliance with these rules shall be painted red and shall be clearly and permanently marked with the word "FIRE". Every such bucket shall be kept filled with sand or water.

(2) At least half the number of fire buckets provided in compliance with these rules shall be fitted with lanyards of sufficient length to enable the buckets to be filled from the sea.

(3) Fire buckets provided in compliance with these rules shall not be used for any purpose other than extinguishing fire.

*Fire Extinguishers*

45. (1) The fire extinguishers provided in compliance with these rules shall be constructed in accordance with the Schedules to these rules respectively specified in the second column of the following table—

Type of extinguisher	Schedule
Non-portable froth	Second
Portable or non-portable carbon dioxide.	third
Portable carbon tetrachloride	Fourth
Any other type of portable extinguisher	Fifth

(2) Not more than two types of portable fire extinguisher shall be provided in the passenger and crew spaces of any ship to which these rules apply.

(3) A spare charge shall be provided for every portable fire extinguisher provided in compliance with these rules.

(4) Fire extinguishers in which the substance for extinguishing fire is stored under pressure shall not be provided for use in passenger spaces or crew spaces.

(5) For the purpose of these rules the capacity of any fire extinguisher other than a carbon dioxide fire extinguisher shall be taken to be the greatest volume of solution which it can contain when sufficient air space is left to ensure the proper operation of the extinguisher.

(6) For the purposes of these rules the capacity of a carbon dioxide fire extinguisher shall be taken to be the greatest weight of carbon dioxide which it can, without danger of exploding, contain in a tropical climate.

(7) Every fire extinguisher provided in compliance with these rules shall at all times be kept fully charged.

#### *Smothering Gas or Steam Installations*

46. (1) Every piping system provided in a ship to which these rules apply for conveying smothering-gas or steam shall be capable of being controlled by valves or cocks which shall be capable of being locked and shall be readily accessible from the deck. Such cocks or valves shall be clearly and permanently marked to indicate the compartments which they serve. Every piping system which serves a compartment to which passengers may have access shall be fitted with an additional cock or valve capable of being locked.

(2) The piping shall be so arranged as to distribute the smothering gas or steam in an efficient manner. Where necessary for that purpose, at least two pipes shall be provided in cargo spaces, one in the forward part of the space and the other in the after part. Except in tankers and ships used for the conveyance of coal, pipes for conveying steam shall be fitted with outlets as low as practicable in the space which they serve.

(3) In tankers, the piping system shall be so arranged that the steam or fire smothering-gas will be distributed over the surface of the cargo.

(4) When carbon dioxide is provided as an extinguishing medium discharged into boiler rooms by a piping system, the quantity of gas available shall be sufficient to give a minimum volume of free gas equal to 30 per cent. of the gross volume of the largest boiler room measured to the top of the boilers. If the engine and boiler rooms are not separated by a bulkhead and fuel oil may drain from the boiler room into the engine room bilges, the combined engine and boiler rooms shall, for the purposes of this sub-rule, be regarded as a single area.

(5) For the purpose of determining the quantity of liquified carbon dioxide required to produce the volume of smothering gas required by these rules, 1 lb. of liquified carbon dioxide shall be deemed to produce 9 cubic feet of gas.

(6) Means shall be provided for giving audible warning when carbon dioxide is about to be released into any working space.

#### *Stopping of Fans and closing of openings*

47. In every ship to which these rules apply, means shall be provided for rapidly stopping all fans and closing all openings which might admit air to spaces provided with a piping system for the discharge of smothering-gas, steam or froth. The means of stopping the fans shall be situated outside such spaces.

#### *Safety Lamps*

48. Every safety lamp provided in compliance with these rules shall be operated by an electric battery and be capable of burning for a period of at least three hours.

#### *Stowage of movable fire appliances*

49. All movable fire appliances, other than firemen's outfits, provided in compliance with these rules shall be stowed where they will be readily accessible from the spaces in which they are intended to be used, and, in particular, fire extinguishers shall be stowed near the entrances to the spaces in which they are intended to be used.

*Equivalents and Exemptions*

50. Where these rules require that a particular fitting, appliance or apparatus, or type thereof, shall be fitted or carried in a ship, or that any particular provision shall be made, the Central Government may allow any other fitting, appliance or apparatus, or type thereof, to be fitted or carried, or any other provision to be made in that ship, if it is satisfied that the other fitting, appliance or apparatus, or type thereof, or provision, is at least as effective as that required by these Rules.

The Central Government may, on such conditions as it thinks fit, exempt any ship constructed before the coming into operation of these rules from any of the requirements of these rules if it is satisfied that the requirement is either impracticable or unreasonable in the case of that ship.

*Penalty*

51. Whoever commits a breach of the provisions of these Rules shall be punishable with a fine which may extend to two hundred rupees and in the case of a continuous breach, with a further fine which may extend to twenty rupees for every day after the first during which the breach continues.

## THE FIRST SCHEDULE

*Froth Fire Extinguishing Installations*

1. Every froth fire extinguishing installation of the gravity type provided in compliance with these rules shall be provided with—

- (a) containers for the froth-forming solution, so placed that a fire in the space intended to be protected will not interfere with the effective working of the installation;
- (b) outlet valves for the containers, so arranged that the solutions will be released from the containers simultaneously and in proper proportions by the operation of a control-wheel or control-handle, in either case so placed as not to be rendered inaccessible by a fire in the space intended to be protected;
- (c) means for agitating and sampling the froth-forming solutions and for testing the expansion rates thereof.

2. In every froth fire extinguishing installation of the continuous-generator type provided in compliance with these rules, the froth-forming apparatus, pumps and sources of power for the pumps, together with all controlling devices and other accessories necessary for efficient operation, shall be so arranged that a fire in the space intended to be protected will not prevent the efficient working of the installation.

3. Every such installation of the gravity or continuous generator type shall be provided with a system of distribution pipes so arranged as to enable the froth to be effectively distributed. Provision shall be made to prevent the obstruction of the pipes or their outlets by water or otherwise, and to enable the efficiency of the pipes to be readily tested. The pipes shall not be led through any refrigerated space unless they are insulated and provision is made for draining them.

4. Instructions in clear and permanent lettering shall be affixed to the equipment or in a position adjacent thereto.

## THE SECOND SCHEDULE

*Non-portable Froth Fire Extinguishers*

1. Every froth fire extinguisher, other than a portable fire extinguisher, provided in compliance with these rules shall be so designed and constructed that the interior of the extinguisher can be examined.

2. The body of the extinguisher shall be cylindrical with ends which shall be dished outwards, without reverse flanging, to a radius not exceeding the diameter of the body. The body and ends shall be made of sheet steel which shall be tinned or lead-coated internally, and every part of the extinguisher shall, where necessary, be protected against corrosion.

3. The body of the extinguisher shall be welded or riveted. All riveted joints shall be soldered.

4. The body shall be provided with an opening for the introduction of an inner container. The opening shall be fitted with a cap of gunmetal or other suitable material, screwed with a continuous thread, through the side of which safety holes or slots shall be provided so that when the cap is being removed any pressure of gas remaining in the container may be released gradually should the discharge opening be choked. The cap joint shall be made with acid-resisting rubber, greased leather, or other suitable material.

5. If the extinguisher is provided with an inner container, such container shall be adequately supported.

6. A reinforced discharge hose shall be provided together with a nozzle, the area of which shall be such that, when the extinguisher is operated, the froth is projected a distance of 45 feet for a period of not less than 100 seconds, in the case of an extinguisher of 30 gallons capacity or over, and a distance of 35 feet for a period of not less than 90 seconds in the case of an extinguisher of under 30 gallons capacity.

7. The charge and the air space above the level of the solution in the ~~body~~ shall be so regulated that the maximum pressure in the extinguisher when put into action, with all outlets closed, does not exceed 280 lbs. per square inch with the solution at a temperature of 100°F.

8. The extinguisher shall be capable of withstanding for a period of 5 minutes an internal pressure of  $1\frac{1}{2}$  times the pressure in the extinguisher when put into action with all outlets closed, and in no event of less than 350 lb.

9. The outside of the extinguisher shall be clearly and permanently marked with—

- (a) the name of the maker of the extinguisher;
- (b) the capacity of the extinguisher;
- (c) the level of the solution, when the ~~extinguisher~~ is filled to its working capacity;
- (d) the pressure under which the extinguisher was tested;
- (e) instructions for operating the extinguisher; and
- (f) the year in which the extinguisher was manufactured.

#### THE THIRD SCHEDULE

##### *Carbon Dioxide Fire Extinguishers*

1. Every carbon dioxide fire extinguisher provided in compliance with these rules shall be provided with cylinders constructed in accordance with any one of the following British Standard Specifications—

No. 401, No. 1287, No. 1288.

2. Each cylinder shall be provided with an internal discharging tube, and a valve to release the gas.

3. The extinguisher shall be provided with a discharge hose which shall be reinforced so as to withstand a pressure of at least 1,800 lb. per square inch when the necessary couplings are fitted. The bore of the discharge hose shall not be less than the sizes respectively set forth in the following table—

Capacity of Extinguisher	Minimum Bore of Discharge Hose
10 lb.	$\frac{1}{4}$ inch
35 lb.	$\frac{3}{8}$ inch
100 lb.	$\frac{1}{2}$ inch

The discharge hose shall be provided with a horn which shall be insulated ~~as~~ of a design which will reduce the velocity of the gas discharged.

4. At any temperature between 50°F and 70°F inclusive, the extinguisher shall discharge gas at such a rate that carbon dioxide equal in weight to  $\frac{1}{4}$  of the capacity of the container will be discharged in the periods respectively set forth in the following table—

Capacity of Extinguisher	Period
10 lb.	20 seconds
35 lb.	35 seconds
100 lb.	70 seconds



5. The outside of the extinguisher shall be clearly and permanently marked with—

- (a) the name of the maker of the extinguisher;
- (b) instructions for operating the extinguisher;
- (c) markings which will indicate the respective weights of the extinguisher when empty and when filled; and
- (d) the year in which the extinguisher was manufactured.

#### THE FOURTH SCHEDULE

##### *Carbon Tetrachloride Fire Extinguishers*

1. Every carbon tetrachloride fire extinguisher provided in compliance with these rules shall be of a nominal fluid capacity of one quart.

2. The body of the extinguisher shall be cylindrical and shall be constructed of copper or brass, in either case of a thickness not less than No. 22 L.S.G. All internal fittings of the extinguisher shall be made of copper, brass, bronze or lead, and all joint washers shall be made of material which will resist carbon tetrachloride.

3. Provision shall be made by which the carbon tetrachloride in the extinguisher can be sealed off from the atmosphere when the extinguisher is not in use, so as to prevent evaporation of the carbon tetrachloride.

4. The extinguisher shall be provided with a hand pump which shall be self-contained and double-acting. The plunger-packing shall consist of material which will resist carbon tetrachloride. The extinguisher shall be capable of discharging substantially the whole of the carbon tetrachloride which it contains, whatever the position in which it is held, and of projecting that fluid for a distance of 20 feet through a period of one minute.

5. The carbon tetrachloride provided for use with the extinguisher shall be of a standard of purity not less than that specified in British Standard Specification No. 575.

6. The outside of the extinguisher shall be clearly and permanently marked with—

- (a) the name of the maker of the extinguisher;
- (b) the capacity of the extinguisher;
- (c) instructions for operating the extinguisher;
- (d) the year in which the extinguisher was manufactured; and
- (e) a notice indicating that if the extinguisher is used for extinguishing fire in a confined space dangerous fumes will be given off and must not be inhaled.

#### THE FIFTH SCHEDULE

##### *Portable Fire Extinguishers (other than carbon dioxide and Carbon Tetrachloride Extinguishers)*

1. Every portable fire extinguisher provided in compliance with these rules, other than a carbon dioxide or carbon tetrachloride fire extinguisher, shall be of a capacity of not less than two gallons.

2. The body of every portable extinguisher shall be cylindrical with dished ends or conical with the larger end dished. The dishing shall be outwards, without reverse flanging, to a radius not exceeding the diameter of the body. If the extinguisher stands vertically a metal support shall be securely attached to the body.

3. The body and ends of the extinguisher shall be made of sheet steel or copper, in either case tinned or lead-covered internally, and every part of the extinguisher shall, where necessary, be protected against corrosion.

4. If the body is made of sheet steel, it shall be solid drawn, welded or riveted. All rivet holes shall be drilled, and all riveted joints shall be soldered or brazed.

5. The body shall be provided with an opening for the introduction of an inner container. The opening shall not be less than 3 inches in diameter and shall be fitted with a gun-metal cap, the screwed part of which shall be approximately  $\frac{3}{4}$  inch deep and shall be screwed with a continuous thread through the

side of which safety holes or slots shall be provided so that when the cap is being removed any pressure of gas remaining in the container will be released gradually should the discharge opening be choked. The cap joint shall be made with acid resisting rubber, greased leather, or other suitable material, and shall not exceed  $\frac{1}{4}$  inch in thickness. Any cage for holding glass bottles shall be removable so as to facilitate the cleaning and inspection of the interior of the extinguisher. Any protector fitted to a plunger shall be of the open or cage type. The body shall be capable of withstanding an internal pressure of 350 lbs. per square inch for five minutes.

6. Extinguishers containing fluid shall be provided with a device which will, when the extinguisher is not in use, prevent the fluid from rising in the discharge tube in consequence of a rise in the temperature of the atmosphere. The discharge tube or opening in such extinguishers shall be fitted with a strainer. Any internal discharge tubes shall be of sufficient length to discharge substantially the whole of the fluid in the extinguisher. No cocks or valves shall be fitted for stopping the discharge of the fluid.

7. The extinguisher shall be capable of projecting fluid for a distance ~~of~~ 20 feet during a period of one minute.

8. The extinguisher shall be provided with fixed handles which will enable it to be readily transported and used.

9. The discharge tube or opening shall be provided with a screwed connection which will facilitate testing.

10. The charge and the air space above the level of the fluid in the body shall be so regulated that, if the extinguisher is put into action with all outlets closed, the internal pressure will not exceed 200 lbs. per square inch when the fluid is at a temperature of 100°F.

11. The outside of the extinguisher shall be clearly and permanently marked with—

- (a) the name of the maker of the extinguisher;
- (b) the capacity of the extinguisher;
- (c) the level of the fluid, when the extinguisher is filled to its working capacity;
- (d) a certificate by the maker that the extinguisher has been tested by hydraulic pressure to 350 lbs. per square inch;
- (e) instructions for operating the extinguisher; and
- (f) the year in which the extinguisher was manufactured.

#### THE SIXTH SCHEDULE

##### *Breathing Apparatus, Smoke Helmets and Smoke Masks*

1. Every breathing apparatus provided in compliance with these rules shall be self-contained. Means shall be provided for warning the wearer that any reacting chemicals forming part of the apparatus are about to be exhausted.

2. Every smoke helmet or smoke mask provided in compliance with these rules shall be provided with a hose for the supply of air from the outside atmosphere. The hose shall be of a non-collapsing type and shall be sufficient in length to enable the inlet end to be on deck or elsewhere in clean air while the wearer of the helmet or mask is in any part of the cargo space, crew space or passenger space, if any. If the hose is more than 90 feet in length a pump or bellows shall be provided which shall be suitable for pumping air through the hose. Efficient couplings shall be provided if two or more lengths of hose are joined in order to reach the aforesaid spaces. The inlet end of the hose shall be capable of being secured in position and shall be so protected as to ensure that the supply of air cannot be obstructed.

3. The following equipment shall be provided for use with the breathing apparatus, smoke helmet, or smoke mask—

- (a) a life-and-signalling line at least 10 feet longer than is required to reach from the deck or elsewhere in clean air to any part of the cargo space, crew space, or passenger space, if any; the line shall be made of hemp-covered wire rope at least  $1\frac{1}{4}$  inches in circumference; the wire incorporated in the rope shall have a breaking strength of not less than 1 ton and shall be made of copper or

galvanised steel; provided that, in any tanker, rope made without wire, but having a breaking strength of not less than 1 ton, may be carried in lieu;

(b) an adjustable safety belt or harness to which the aforesaid line shall be securely attached;

(c) means for protecting the eyes and face of the wearer against smoke.

4. The breathing apparatus, smoke helmet or smoke mask shall each be clearly and permanently marked with the name of the maker or vendor and the year in which they were manufactured. Operating instructions in clear and permanent lettering shall be affixed to the said equipment.

[No. 51-MA(5)/54.]

*New Delhi, the 25th May 1956*

**S.R.O. 1265.**—In exercise of the powers conferred by section 245 of the Indian Merchant Shipping Act, 1923 (XXI of 1923), and in supersession of the Indian Merchant Shipping (Wireless Telegraphy) Rules, 1934, in so far as they relate to the installation of wireless telegraphy, the Central Government hereby makes the following rules, namely:—

#### PRELIMINARY

1. (1) These rules may be called the Indian Merchant Shipping (Radio) Rules, 1956.

(2) They shall come into force on the 1st September 1956.

2. In these rules, unless the context otherwise requires—

(i) "cargo ship" means a ship other than a passenger steamer,

(ii) "connected" means electrically connected,

(iii) "existing installation" means—

(a) an installation wholly installed before the date on which these rules come into operation; and

(b) an installation part of which was installed before the said date and the rest of which consists either of parts installed in replacement of indential parts, or parts which comply with the relative requirements of these rules,

(iv) "interference" means any radiation or any induction which endangers the functioning of a radio navigation service or a safety service or obstructs or repeatedly interrupts radio service operating in accordance with these rules,

(v) "mile" means a nautical mile of 6080 feet,

(vi) "operating position" in relation to any equipment means the position normally occupied by a person when operating that equipment,

(vii) "international voyage" means a voyage from a country to which the Safety Convention applies to a port outside such country or conversely; and for the purpose of this definition, every territory for the International relations of which a contracting Government is responsible or for which the United Nations are the administering authority shall be regarded as a separate country,

(viii) "passenger steamer" means a steamship carrying more than twelve passengers,

(ix) "radio telegraph ship" means a ship being a ship to which these rules apply, which is provided with a radiotelegraph installation and which is not a radiotelephone ship,

(x) "radiotelephone distress frequency" means a frequency of 2182 Kc/s.

(xi) "radiotelephone ship" means a cargo ship, being a ship to which these rules apply, of not less than 500 tons but of less than 1,600 tons the owner of which has given the Central Government notice in writing (which has not been withdrawn) that the ship is provided with a radiotelephone installation in compliance with these rules,

(xii) "radio watch", in the case of radiotelegraph ships, means listening on a frequency of 500 Kc/s, and in the case of radiotelephone ships means listening on the radiotelephone distress frequency,

(xiii) "Schedule" means a Schedule annexed to these rules,

(xiv) "silence periods" means the periods of 3 minutes beginning for purposes of radiotelegraphy at 15 minutes and at 45 minutes after each hour, and for

purposes of radiotelephony at each hour and at 30 minutes after each hour, in every case determined according to Greenwich Mean Time,

(xv) "steamer" includes a ship propelled by electricity or other mechanical power,

(xvi) "tons" means gross tons,

(xvii) in relation to waves and signals—

(a) "type A1" means radiotelegraphy by the keying of a continuous wave on and off;

(b) "Type A2" means amplitude modulated radiotelegraphy by the keying of a modulating audio frequency or of an omission continuously modulated by an audio frequency; and

(c) "Type A3" means double sideband amplitude modulated radiotelephony; and

(d) "Type B waves" means damped waves; and

(xviii) "Wireless Operator" means a person who, before the coming into operation of these rules, was a person qualified to be an operator within the meaning of the Indian Wireless Telegraph Rules, 1949.

**3. Application and classification of ships.**—(1) These rules shall apply to ships which are—

(a) sea-going Indian ships, registered in India;

(b) other sea-going ships while they are within any port in India;

and are not

(i) troopships not registered in India;

(ii) ships not propelled by mechanical means;

(iii) pleasure yachts;

(iv) fishing boats; or

(v) cargo ships of less than 500 tons.

(2) The ships to which these rules apply shall be classified as follows:—

**Class I**—Steamers carrying more than 250 passengers or in respect of which there is in force a certificate issued by the Central Government, or by any authority empowered in that behalf by the laws of any country other than India, to the effect that they are fit to carry more than 250 passengers, and which

(a) in the case of Indian ships registered in India are at sea for more than 16 hours between two consecutive ports;

(b) in the case of ships other than Indian ships registered in India, arrive at a port in India having been at sea for more than 16 hours since last leaving port, or in respect of which clearance or transit is sought from a port in India for a voyage requiring more than 16 hours at sea before reaching port.

**Class II**—(a) Passenger steamers other than those of Class I.

(b) Cargo ships of 1,600 tons and upwards.

**Class III**—Cargo ships of 500 tons and upwards but of less than 1,600 tons.

**4. Saving with respect to existing installations.**—The provisions of these rules shall, notwithstanding anything contained therein, be deemed to have been complied with if the existing installation in any ship complies with the provisions of the First Schedule or where it does not comply with those provisions, is so modified in the manner and within the period specified in that Schedule, as to comply with such provisions.

**5. Provisions of radio installations.**—(1) Every ship of Class I and Class II shall be provided with a radiotelegraph installation which shall include the equipment specified in the Second Schedule.

(2) Every ship of Class III shall be provided with a radiotelephone installation which shall include the equipment specified in the Third Schedule or with a radiotelegraph installation which shall include the equipment specified in the Second Schedule:

Provided that the main and emergency radiotelegraph transmitters in a ship of Class III may be combined in a single instrument, if that instrument is capable of complying with the requirements of Part I and Part III of the said Second Schedule.

**6. Climatic and durability tests.**—(1) All equipment the requirements for which are specified in these rules shall be such that it will be free of mechanical defects and comply with the said requirements—

(a) while undergoing the vibration, dry heat, and low temperature tests specified in the Fourth Schedule.

(b) when subjected to the damp heat test specified in sub-paragraph (4) of paragraph 3 of the said Schedule; and

(c) immediately after undergoing such of the other tests specified in the said Schedule as are applicable to the equipment in the circumstances.

(2) Any such equipment which is intended for use in the open or in an open boat shall be such that after undergoing the mould growth test specified in the Fourth Schedule no mould growth shall be present on it.

**7. Interference with reception.**—At no time while the ship is at sea shall the interference or mechanical noise produced by the radio installation required by these rules or by other equipment in the ship be sufficient to prevent the effective reception of radio signals by means of such installation.

**8. High Voltage Parts.**—(1) All parts and wiring to which this rule applies shall be protected from accidental access and, except in the case of a generator or converter, shall be isolated automatically from all sources of electrical energy when the means of protection are removed. Any such parts which are capacitors in a transmitter shall be capable of being discharged.

(2) This rule applies to all parts and wiring of the equipment specified in these rules in which the direct and alternating voltages (other than radio-frequency voltages) combine at any time to give an instantaneous voltage greater than—

(a) 50 volts in the case of equipment specified in the Fifth Schedule;

(b) 250 volts in the case of all other equipment.

**9. Charging of batteries.**—Means shall be provided on board every ship to which these rules apply for the charging from the ship's main source of electrical energy of any batteries which are provided as a source of electrical energy for any part of the equipment required by these rules. An alternative means of charging such batteries shall also be provided if the means of charging such batteries is a rotary converter.

#### PART II—RADIOTELEGRAPHY

**10. Electrical independence of main and emergency radio-telegraph equipments.**—Subject to the provisions of sub-rule (2) of rule 5, the main and emergency radio-telegraph equipments provided on board a radio-telegraph ship shall be electrically independent of each other.

**11. Radio-telegraph room.**—(1) Every radio-telegraph installation provided on board a radio-telegraph ship shall be installed in one or more radio-telegraph rooms not used for any purpose other than the operation of radio equipment. The radio-telegraph rooms shall be in such a position that there will be no disturbance by extraneous noises or otherwise with the effective reception of radio signals, and shall be as high as practicable in the ship.

(2) Every radio-telegraph installation provided on board a radio-telegraph ship shall be installed in such a position that it will be protected against disturbance of its effectiveness by water or by extremes of temperature.

(3) Every radio-telegraph room shall be provided with—

(a) an efficient two-way means of calling and voice communication with the bridge and any other place from which the ship is normally navigated. Such means of communication shall be a voice-pipe or a telephone, or some other means equally efficient, and shall be independent of the main communication system of the ship and of the ship's main source of electrical energy;

(b) a reliable clock, equipped with a dial not less than 5 inches in diameter and a centre seconds hand, securely mounted in such a position that the entire dial can be easily and accurately observed from the radio-telegraph operating position, and if the ship is provided with an auto-alarm, from the position normally occupied by a person testing the auto-alarm;

(c) an electric lamp, operated from the source of electrical energy required by sub-rule (2) of rule 14 and permanently arranged so as to be capable of providing adequate illumination of the operating controls of the main and emergency radio-telegraph installations and of the

clock required by this rule, and controlled by two-way switches placed respectively near the entrance to the radio-telegraph room and at the radio-telegraph operating position;

- (d) an additional electric lamp, for use as an inspection lamp, operated from the aforesaid source of energy, and provided with a flexible lead of sufficient length to enable all parts of the radio-telegraph installation to be easily seen;

- (e) a chair capable of being fixed at the radio-telegraph operating position.

(4) A complete list of spare equipment and spare parts carried on board the ship for the maintenance of the radio-telegraph installation, shall be available in every radio-telegraph room and shall indicate where such equipment and parts are kept.

(5) A calibration table or calibration curve for each transmitter and receiver forming part of the radio-telegraph installation shall always be available in a radio-telegraph room, unless the transmitter or receiver, as the case may be, is directly calibrated.

(6) In the case of a radio-telegraph installation which is not an existing installation, a complete diagram of the wiring and all necessary working instruction of such installation shall always be available in a radio-telegraph room.

**12. Aerials.**—(1) Every radio-telegraph ship shall be fitted with a main aerial and an emergency aerial, provided that the Central Government may exempt any ship from the requirement of an emergency aerial if they are satisfied that the fitting of such an aerial is impracticable or unreasonable in the circumstances. Any ship so exempted shall carry a spare aerial completely assembled for immediate erection.

(2) Each of the halyards used for supporting such main aerial shall be fitted with a safety loop between the masthead or other aerial support and an aerial insulator. Such safety loop shall consist of a part of the halyard not less than three feet long, the loop being closed by a link not more than one foot three inches long with a breaking load not more than one-third of the breaking load of the aerial or the halyard, whichever is the less.

(3) A rigging plan of such aerials shall be available in a radio-telegraph room, and shall show the following:—

- (a) elevation and plan views of the aerials;
- (b) the measurements of the aerials in feet and inches; and
- (c) the height of the aerials in metres measured in the manner specified in sub-rule (3) of rule 13.

(4) The main aerial and the emergency aerial (if any) shall where practicable, be so rigged that damage to the one will not effect the efficiency of the other.

(5) The main and emergency aerials shall each be capable of being connected, as circumstances may require, to

- (a) the main transmitter, either directly or with the intervention of an amplifier;
- (b) the main receiver; and
- (c) the emergency transmitter.

The emergency aerial shall also be capable of being connected to the emergency receiver.

(6) All aerials whether for transmission or reception shall be erected as far above and as far away as possible from deck machinery and the ship's structure such as funnels, stays and shrouds.

The leads of all aerials used exclusively for reception shall be screened from the input circuit of the receiver to as high a point above the ship's structure as possible and such screening shall be continuous and effectively earthed at the receiver.

**13. Range of Transmitters.**—(1) The normal ranges of the radio-telegraph transmitters provided in accordance with the foregoing provisions of these rules shall not be less than—

- (a) in the case of a ship of Class I, 175 miles for the main transmitter and 150 miles for the emergency transmitter;
- (b) in the case of a ship of Class II, 150 miles for the main transmitter and 100 miles for the emergency transmitter;

(c) in the case of a ship of Class III, 100 miles for the main transmitter and 75 miles for the emergency transmitter.

(2) The range of a transmitter for the purposes of these rules shall be determined either by reckoning or by test.

(3) For the purposes of these rules the normal range of a radio-telegraph transmitter when determined by reckoning, shall be calculated by ascertaining the product of the root mean square current in amperes at the base of the main aerial and the maximum height in metres of the aerial measured from the load link mark indicating the greatest depth to which the ship may at any time or place be submerged in accordance with the Indian Merchant Shipping (Load Line) Rules, 1934, or if there is no such mark on the ship, from the mean level of the surface of the water in which the ship is afloat. The product so ascertained in metro-amperes shall be converted to miles in accordance with the following table:—

Product in metro-amperes	Equivalent in miles
102	175
76	150
45	100
34	75
10	25

(4) For the purposes of these rules the normal range of a radio-telegraph transmitter, when determined by test, shall be the distance to which signals can be transmitted by such transmitter over the sea by day under normal conditions on a frequency of 500 kc/s so as to set up at the receiver a total root mean square field strength of at least 50 microvolts per metre.

**14. Supply of electrical energy.**—(1) There shall be available in every radio-telegraph ship while the ship is at sea, and at all reasonable times when the ship is in port for testing purposes, a supply of electrical energy from the ship's main source of electrical energy sufficient for the operation of the main radio-telegraph equipment in accordance with these rules, and for the charging of any batteries which are a source of electrical energy for the radio-telegraph installation. The rated voltage of the supply of electrical energy for the main equipment shall be maintained within plus or minus 10 per cent. The supply of electrical energy shall, if it is a direct current supply, be of correct polarity and a meter to indicate this should be fixed in the radio-telegraphy room, unless otherwise provided. Provided that in any ship not engaged on an international voyage the aforesaid supply of electrical energy may be derived from a battery, in which case a duplicate battery shall also be provided for that purpose.

(2) The emergency equipment shall include a source of electrical energy independent of the propelling power of the ship and of the rest of the ship's electrical installation, and capable of being brought into immediate operation by means of a switchboard situated in a radio-telegraph room or readily accessible therefrom. Any source of electrical energy provided in compliance with this sub-rule shall be of such capacity and shall be maintained at all times when at sea in such condition as to be able to supply continuously for a period of 6 hours, whether or not it is in use for any of the purposes specified in sub-rule (3) of this rule, a total current equal to the sum of—

- the current required to operate the emergency transmitter with the key up;
- three-fifths of the difference between the current required to operate the emergency transmitter with the key down and the current required to operate it with the key up;
- the current required to operate the emergency receiver; and
- the current consumed by the electric lamp required by clause (c) of sub-rule (3) of rule 11.

(3) The source of electrical energy provided under sub-rule (2) of this rule shall not be used at any time except for the operation of—

- the emergency transmitter and receiver;
- the lamps required by clause (c) and (d) of sub-rule (3) of rule 11.
- the automatic keying device;

- (d) an auto-alarm;
- (e) a direction-finder.

15. **Tools, measuring instruments, spare parts, etc.**—Every radiotelegraph ship shall be provided with the tools, measuring instruments, spare parts and other material specified in the Sixth Schedule.

16. **Exemption of Class III ships.**—The Central Government may exempt any ship of Class III from any of the requirements of the foregoing provisions of this Part of these rules, subject to such conditions as they think fit.

17. **Provision of radio officers.**—(1) Every radiotelegraph ship which upon proceeding to sea is not provided with an auto-alarm complying with the requirements specified in the Seventh Schedule shall be provided with radio officers as follows:—

Class I.—Three radio officers.

Class II.—two radio officers if she is at sea for not more than 48 hours between consecutive ports and three radio officers if she is at sea for more than 48 hours between consecutive ports.

Class III.—one radio officer.

(2) Every radiotelegraph ship which upon proceeding to sea is provided with an auto-alarm complying with the aforesaid requirements shall be provided with radio officers as follows:—

Class I.—two radio officers.

Class II.—one radio officer.

Class III.—one radio officer.

18. **Qualifications of radio officers.**—(1) For the purposes of these rules no person shall be qualified to be a radio officer on board a ship registered in India unless he holds a valid certificate of proficiency or competency in radiotelegraphy of the first or second class granted by the Central Government or by any authority appointed by the Central Government or by any authority empowered in that behalf by the laws of the Government of the United Kingdom or some part of Her Majesty's dominions or the Republic of Ireland, and recognised by the Central Government as the equivalent of such a certificate granted by them.

(2) Immediately one year after the commencement of these rules, at least one of the radio officers on board an Indian passenger steamer registered in India shall have first class certificate granted by the Central Government or a certificate granted by any other authority recognised by the Central Government:

Provided that the Central Government may exempt any ship from the provision of this sub-rule, subject to such conditions as they think fit.

(3) For the purposes of sub-rules (1) and (2) of this rule no Certificate of Proficiency or competency shall be deemed to be valid at any date if—

(a) it was granted more than three years before that date (except that this period shall be 5 years when the Certificate is initially issued after an examination), and

(b) the holder's last experience was more than 3 years before that date, unless the holder satisfies the Central Government by re-examination or otherwise that he still possesses all of the qualifications described in his certificate. For the purposes of this sub-rule the expression "experience" means experience at sea as a radio officer or wireless operator or experience as an operator of radiotelegraph apparatus at a radiotelegraph station maintained on land by the Central Government for communication with ships.

(4) At least one of the radio officers on board a ship of Class I or Class II registered in India shall be a person who has had experience at sea as a radio officer or wireless operator for a total or not less than—

(a) two years in the case of ships of Class I;

(b) one year in the case of ships of Class II (a);

(c) six months in the case of ships of Class II (b), being ships of 3,000 tons or upwards;

(d) three months, in the case of ships of Class II (b), being ships of 1,600 tons and upwards but under 3,000 tons.

(5) For the purposes of these rules no person shall be deemed to be a radio officer on board a ship not registered in India unless he holds a valid certificate of proficiency or competence in radiotelegraphy granted by an authority empowered or recognised in that behalf by the laws of the country in which the ship is registered.



**19. Radio watch by radiotelegraph.**—(1) subject to the provisions of sub-rule (1) of rule 20 radio watch shall be maintained at sea on board every radiotelegraph ship by a radio officer as follows:—

(a) if the ship upon proceeding to sea is not provided with an auto-alarm complying with the requirements specified in the Seventh Schedule:—

(i) in the case of a ship of Class I or Class II a continuous watch;

(ii) in the case of a ship of Class III, a watch of eight hours a day at the times specified in column 5 of the Eighth Schedule in relation to the zone in which the ship then is;

(b) if the ship upon proceeding to sea is provided with an autoalarm as aforesaid:—

(i) in the case of a ship of Class I, a watch of sixteen hours a day at the times specified in Column 4 of the Eighth Schedule in relation to the zone in which the ship then is;

(ii) in the case of a ship of Class II or Class III, a watch of eight hours a day at the times specified in Column 5 of the Eighth Schedule in relation to the zone in which the ship then is.

(2) Any auto-alarm provided on board a radiotelegraph ship shall be in operation at all times at which a radio watch is not maintained unless the auto-alarm has broken down since the ship last put to sea and cannot be repaired at sea so as to operate effectively.

**20. Watchkeeping, etc., by radio officers.**—(1) Every radio officer on board a radiotelegraph ship shall keep radio watch by means of headphone reception throughout his period of duty except when another radio officer keeps radio watch by head-phone reception.

Provided that—

(a) radio watch may be maintained by means of loudspeaker reception, or

(b) if loudspeaker reception is impracticable radio watch may be dispensed with except during a silence period,

for such periods as may be necessary to enable the radio officer to perform other duties in compliance with these rules or with the Indian Merchant Shipping (Direction-Finders) Rules, 1956.

(2) Every radio officer on board a radiotelegraph ship provided with an auto-alarm complying with the requirements specified in the Seventh Schedule shall, whenever radio watch ceases to be maintained during or at the end of his period of duty, connect the auto-alarm with the ship's main aerial, or with any other equally efficient aerial, and shall put the auto-alarm into operation. Every radio officer who leaves an auto-alarm in operation when he goes off duty shall before going off duty

(a) test the efficiency of the auto-alarm; and

(b) immediately report the result of such test to the master of the ship or to the officer in charge of the navigation of the ship.

(3) Every such radio officer who finds an auto-alarm connected to an aerial when he goes on duty shall immediately test the efficiency of the auto-alarm before making any adjustment thereto.

(4) While a radiotelegraph ship is at sea, the radio officer or, if there is more than one, the first radio officer shall cause the following tests to be made:—

(a) a test once a day of the emergency radiotelegraph transmitter connected with an artificial aerial complying with the requirements specified in paragraph 13 of Part III of the Second Schedule;

(b) if the ship is engaged on an international voyage a test once during every voyage of the emergency radiotelegraph transmitter connected with the emergency aerial, if any,

(c) a test once a day by voltmeter and once a month by hydrometer of any batteries which are a source of energy for radiotelegraph installation;

(d) a test once a day of any other source of electrical energy provided for the emergency radiotelegraph equipment; and

(e) a test once a day of the audible alarm circuits and of the bells forming part of the auto-alarm.

(5) While a radiotelegraph ship is at sea, the radio officer or, if there is more than one, the first radio officer shall take all steps within his power to cause the equipment referred to in these rules to be properly maintained and

when necessary to be repaired and adjusted. Such officer shall cause all batteries, being a source of electrical energy for any part of the radiotelegraph installation, which are found not to be fully charged to be brought up to that condition daily.

**21. Restriction of use of emergency transmitter.**—The transmitter forming part of the emergency radiotelegraph equipment shall not be used to transmit messages other than those relating to the safety of life at sea, unless such transmitter complies with the requirements specified in Part I of the Second Schedule.

**22. Radiotelegraph log.**—(1) A radiotelegraph log-book in the form specified in the Ninth Schedule hereto shall be kept in a radiotelegraph room on board every radiotelegraph ship registered in India, and shall be available for inspection by any person authorised in that behalf by the Central Government.

(2) Every radio officer on board such a ship shall, when on duty, enter in such log-book:—

- (a) his name;
- (b) the times at which he goes on and off duty;
- (c) the identifying number of each message transmitted by him, or received by him, together with the time and date of such transmission or reception, the station to which each message is transmitted by him, and the station from which each message is received by him; and
- (d) a record of all incidents occurring during his period of duty which relate to the radiotelegraph installation and the operation thereof and which appear to him to be of importance to the safety of life at sea; in particular, he shall make the following entries:—
  - (i) the full text of all messages transmitted by him or received by him which relate to immediate assistance required by persons in distress at sea or above the sea;
  - (ii) the full text of all messages transmitted by him or received by him which are preceded by a signal in general international use as an urgency signal or a safety signal;
  - (iii) a record of the radio watch maintained by him during each of the silence periods;
  - (iv) a record of any incident occurring during his period of duty which affects the efficiency of the radiotelegraph installation;
  - (v) a record of the tests conducted by him in accordance with sub-rules (2), (3) and (4) of rule 20 and of results of such tests;
  - (vi) a record of the charging by him of any batteries used as a source of energy for the radiotelegraph installation; and
  - (vii) if the ship is provided with an auto-alarm, details of any failure or repair thereof during his period of duty.

(3) The radio officer or, if there is more than one, the first radio officer shall cause an entry to be made in such log-book at least once a day recording the time shown by the clock in each radiotelegraph room in comparison with Greenwich Mean Time, and any correction made in respect of that clock.

(4) The master of the ship and, if there is more than one radio officer, the first radio officer shall inspect and sign such log-book once a day.

(5) Sections 122 and 123 of the Indian Merchant Shipping Act, 1923 (XXI of 1923) (which provide for the maintenance and delivery of the official log-book) shall apply to the radio-telegraphy log book as they apply to the official log-book.

### PART III--RADIOTELEPHONY

**23. Aerial.**—Every radiotelephone ship shall be fitted with an aerial, and in addition shall carry a spare aerial completely assembled for immediate erection. A rigging plan of the fitted aerial shall be available on board and shall show:—

- (a) elevation and plan views of the aerial;
- (b) the measurements of the aerial in feet and inches; and
- (c) the height of the aerial in metres measured in the manner specified in sub-rule (3) of rule 24.

**24. Range.**—(1) The normal range of the radiotelephone transmitter provided in accordance with the foregoing provisions of these rules shall not be less than 150 miles.

(2) The range of a radiotelephone transmitter for the purposes of these rules shall be determined either by reckoning or by test.

(3) For the purposes of these rules the normal range of a radiotelephone transmitter, when determined by reckoning on the radiotelephone distress frequency, shall be calculated by ascertaining the product of the root mean square current in amperes at the base of the aerial and the maximum height in metres of the aerial measured from the lead-out insulator. The transmitter shall be deemed to comply with the requirements of this rule, if the power in the aerial is not less than 15 watts (unmodulated carrier) and the product so ascertained is not less than

(a) 9.6 metre-amperes on a frequency of 1,650 kc/s, or 7.5 metre-amperes on a frequency of 2,182 kc/s, in either case if the aerial has a horizontal top-length of not less than one half of its maximum height measured from the lead-out insulator;

(b) 14.7 metre-amperes on a frequency of 1,650 kc/s, or 12.8 metre-amperes on a frequency of 2,182 kc/s, in the case of any other aerial.

(4) For the purposes of these rules, the normal range of a radiotelephone transmitter, when determined by test on the radio-telephone distress frequency, shall be the distance to which signals can be transmitted by such transmitter over the sea by day under normal conditions on that frequency so as to set up at the receiver by the unmodulated carrier a total root mean square field strength of at least 25 microvolts per metre.

**25. Supply of electrical energy.**—(1) There shall be available in every radio-telephone ship while she is at sea a supply of electrical energy sufficient to operate the radio-telephone installation in accordance with these rules. The supply of electrical energy shall if it is a direct current supply, be of correct polarity, and a meter to indicate this should be fixed in the radio-telephony room, unless provided otherwise. In the case of radiotelephone installation which is not an existing installation an emergency source of electrical energy shall be provided in the upper part of the ship unless the main source of electrical energy is so situated. Each source of energy provided in compliance with this rule shall be of such capacity as to be able to supply continuously for a period of six hours a total current equal to the sum of:—

(a) one-half of the current required to operate the radiotelephone transmitter for the transmission of speech;

(b) the current required to operate the radiotelephone receiver; and

(c) the current consumed by the electric lamp required by sub-rule (d) of rule 26.

(2) If a single battery is provided for the foregoing purpose means shall also be provided for either:—

(i) operating the radio-telephone receiver and transmitter from the ship's main source of electrical energy, or

(ii) float-charging the battery while it is in use, in which case there shall be adequate protection against voltage rise.

Such means shall be so designed as not to require the earthing of the ship's main source of electrical energy, and a filter shall be provided to prevent mainsborne interference from entering the receiver.

(3) When the batteries for the radiotelephone transmitter are not in use, each battery shall be capable of being fully charged within a period of not more than 16 hours by the means for charging required by rule 9.

**26. Miscellaneous Requirements.**—The following provisions shall apply to every radiotelephone ship:—

(a) The radiotelephone installation required by these rules shall be installed as high as practicable in the ship.

(b) An efficient two-way means of communication shall be provided between the place where the aforesaid radiotelephone installation is installed and any other place from which the ship is normally navigated.

- (c) A reliable clock shall be securely mounted within sight of the operating position of the aforesaid radiotelephone installation.
- (d) An electric lamp shall be provided and shall be operated from the emergency source of electrical energy required by rule 25 or, if no emergency source of electrical energy is so required, from the main source. The lamp shall be permanently arranged so as to be capable of providing adequate illumination of the operating controls of the aforesaid radio-telephone installation and the clock required by clause (c) of this rule. The lamp shall be controlled by two-way switches placed respectively near an entrance to the room in which the said radio-telephone installation is installed and at the operating position thereof in that room.

**27. Provision and qualifications of radiotelephone operators.**—(1) Every radiotelephone ship shall be provided with at least one radiotelephone operator.

(2) For the purposes of these rules no person shall be qualified to be a radiotelephone operator on board a Ship registered in India unless he holds a valid certificate of proficiency or competence in radiotelephony or radio telegraphy granted by the Central Government or by an authority empowered in that behalf by the laws of the Government of the United Kingdom or some part of Her Majesty's dominions and the Republic of Ireland and recognised by the Central Government as the equivalent of such a certificate granted by them.

(3) For the purposes of these rules no person shall be deemed to be a radiotelephone operator on board a ship registered in a country, other than India, unless he holds a valid certificate of proficiency or competence in radiotelephony or radiotelegraphy granted by an authority empowered or recognised in that behalf by the laws of the country in which the ship is registered and recognised by the Central Government as the equivalent of such a certificate granted by them.

**28. Radio watch by radiotelephone.**—While a radiotelephone ship is at sea radio watch shall be maintained by a radiotelephone operator for at least 8 hours a day, at the times specified in column 5 of the Eighth Schedule in relation to the zone in which the ship then is.

**29. Watchkeeping, etc., by radiotelephone operators.**—(1) Every radiotelephone operator on board a radiotelephone ship shall keep radio watch during the periods of duty assigned to him by the master of the ship.

(2) While a radiotelephone ship is at sea, the radiotelephone operator or, if there is more than one, the first radiotelephone operator shall cause any batteries which are a source of electrical energy for the radiotelephone installation to be tested once a day and brought up to fully-charged condition as soon as may be.

**30. Radiotelephone log.**—(1) A radiotelephone log-book in the form specified in the Tenth Schedule shall be kept near the radiotelephone installation in every radiotelephone ship, and shall be available for inspection by any person authorised in that behalf by the Central Government.

(2) Sub rules (2), (3), (4) and (5) of rule 22 shall apply to such radiotelephone log-book as they apply to a radiotelegraph log-book, and references in the said sub-rules to a radio officer, a radiotelegraph installation and a radiotelegraph room shall be construed accordingly. Provided that an entry shall be required to be made in the radiotelephone, log-book only of the general sense of the messages referred to in clause (d) of sub-rule (2) of that rule.

#### PART IV—TECHNICAL REQUIREMENTS OF RADIO EQUIPMENT FOR LIFEBOATS

**31. Radio equipment for motor lifeboats.**—(1) The radiotelegraph equipment required by sub-rule (10) of rule 5, sub-rule (10) of rule 6, sub-rule (11) of rule 7, sub-rule (11) of rule 8, sub-rule (11) of rule 9 and sub-rule (9) of rule 10 of the Indian Merchant Shipping (Life Saving Appliances) Rules, 1956 shall comply with the specification set forth in Part I of the Fifth Schedule.

(2) The battery included in such equipment shall not be used for any purpose other than the operation of such equipment and of the searchlight provided in compliance with the aforesaid rules.

**32. Portable radio equipment for lifeboats.**—The equipment required by sub-rule (11) of rule 5, sub-rule (11) of rule 6, sub-rule (12) of rule 7, sub-rule (12) of rule 8, sub-rule (12) of rule 9, sub-rule (10) of rule 10, sub-rule (5) of

rule 12 and sub-rule (5) of rule 13 of the Indian Merchant Shipping (Life Saving Appliances) Rules, 1956, shall comply with the specifications set forth in part II of the Fifth Schedule.

**33. Tests of radio equipment for lifeboats.**—(1) When a radio-telegraph ship provided with the equipment referred to in rule 31 or rule 32 is at sea, the radio officer or, if there is more than one, the first radio officer shall at least once every 7 days, cause the transmitter forming part of such installation or equipment to be tested with its artificial aerial and cause any batteries, other than self-priming batteries, which are a source of electrical energy for such installation or equipment to be tested by voltmeter and hydrometer and brought up to fully-charged condition as soon as may be.

(2) The radio officer making the tests referred to in sub-rule (1) of this rule shall cause the results of such tests to be entered in the radiotelegraph log-book.

**34. Manner in which notice should be given to the Chief Officer Customs.**—The notice required to be given under sub-section (3) of section 243 of the Indian Merchant Shipping Act, 1923 (XXI of 1923) shall be in the form in the Eleventh Schedule and a copy of every such notice shall on the same day be forwarded by the Radio Inspector issuing the notice to the Chief Officer of Customs at the port concerned.

**35. Fees.**—(1) For the grant of the certificate referred to in sub-section (4) of section 253 of the Indian Merchant Shipping Act, 1923 (XXI of 1923) there shall be charged a fee, calculated, subject to a maximum of Rs. 120 at the rate of Rs. 30 for each inspection of a ship which is made by a Radio Inspector with a view to the grant of the said certificate..

(2) The fee prescribed by sub-rule (1) shall be paid to the Radio Inspector before the certificate is granted.

(3) In addition to the fees payable under sub-rule (1) of this rule there shall be payable along with an application for inspection a fee of Rs. 60 in respect of every inspection which is required by such application to be made on any of the following days, namely:—

- (a) Sunday.
- (b) Bank Holiday (January 1).
- (c) Republic Day.
- (d) Holi.
- (e) Id-ul-fitr.
- (f) Independence day.
- (g) Dusehra.
- (h) Mahatma Gandhi's Birthday.
- (i) Diwali.
- (j) Christmas Day.

(4) The charge of overtime fees in respect of inspections wholly or partially carried out between the hours of 5 P.M. and 7 A.M. shall be regulated as follows:—

- (a) Where on the application of the owner or agent of the ship a Radio Inspector is called upon to undertake the inspection of a vessel after 5 P.M. and before 7 A.M. an additional fee of Rs. 50 shall be charged.
- (b) Where a Radio Inspector is detained at the request of the owner or agent after 5 P.M. to complete an inspection undertaken between the hours of 7 A.M. and 5 P.M. an additional fee of Rs. 25, if the Radio Inspector is released from duty before 6 P.M. and of Rs. 50 if he is detained later than 6 P.M. shall be charged.
- (c) Where the owner or agent has asked for inspection between the hours of 7 A.M. and 5 P.M. but official arrangements have not allowed of the work being done between those hours no additional fee shall be chargeable.
- (d) Where a Radio Inspector has been called upon as specified in clause (a) or detained as specified in clause (b) the owner or agent shall give information of the fact in writing to the Principal Officer of the Port stating the hours during which the Radio Inspector was in attendance.

## THE FIRST SCHEDULE

1. *Transitional Provisions.*—As to Rule 5.—Subject to the provisions of paragraph 2 of this Schedule, any ship which is provided with radio-telegraph equipment forming part of an existing installation shall not be required to be provided with the equipment specified in the Second Schedule if the radio-telegraph equipment provided in the ship complies with:—

- (i) such of the requirements of the Indian Merchant Shipping (Wireless Telegraphy) Rules, 1934, as would have been applicable to it if the said Rules had not been revoked, and
- (ii) with the requirements set forth in the following table, as from the respective dates set forth in the third column of that table:—

Item	Requirement	Date from which the requirement applies
1. The main transmitter and main receiver	Must together be capable of changing automatically from transmission to reception in the intervals between the morse signals of any transmission.	From the date of coming into operation of these rules.
2. Main and emergency transmitter	Must each be modulated to a depth of not less than 70 per cent.	From the date of coming into operation of these rules.
3. Main transmitter	Must be capable of :— (a) transmitting type A2 waves on frequencies of either (i) 410 kc/s, 500 kc/s and 512 kc/s and on any two of the frequencies 425 kc/s, 454 kc/s, 468 kc/s and 480 kc/s ; or (ii) in any case in which the Central Government so permits, 410 kc/s, 500 kc/s and on one of the frequencies 425 kc/s, 454 kc/s, 480 kc/s and 512 kc/s. (b) maintaining throughout the period of 10 minutes from the commencement of transmission a frequency tolerance not exceeding plus or minus 0.3 per cent ; and (c) Maintaining throughout every transmission a frequency tolerance not exceeding plus or minus 0.1 per cent.	From the date of coming into operation of these rules.  From the date of coming into operation of these rules.  One year from the date of coming into operation of these rules.
4. Emergency transmitter	Must be capable of :— (a) transmitting type A2 waves on a frequency of 500 kc/s (b) Maintaining a frequency tolerance throughout every transmission not exceeding plus or minus 0.5 per cent, subject to the provisions of paragraph 13 of this Schedule.	One year from the date of coming into operation of these rules. From the date of coming into operation of these rules.
5. Main receiver	(a) Must be capable of :— (i) producing signals in headphones when the receiver input is as low as 100 microvolts. (ii) receiving type A1 waves on all frequencies from 15 kc/s to 20 kc/s and from 100 kc/s to 160 kc/s and (iii) receiving type A1 and A2 waves on all frequencies from 160 kc/s to 25,000 kc/s. Provided that the Central Government may permit a frequency of from 160 kc/s to 4,000 kc/s instead. (b) Must be such that the radiation from the receiver does not exceed 0.1 micro-volt per metre when measured at a distance of one mile from the receiver or when tested in the manner set forth in sub-paragraph (2) of paragraph 18 of Part II of the Second Schedule to these Rules.	From the date of coming into operation of these rules. From the date of coming into operation of these rules. From the date of coming into operation of these rules. One year from the date of coming into operation of these rules.

Item	Requirement	Date from which the requirement applies
6. Emergency receiver	(a) Must be capable of :— (i) producing signals by means of a loud speaker when the receiver input is as low as 100 micro-volts ; (ii) receiving type A2 and type B waves on a frequency of 500 kc/s ; (b) Must be such that the radiation from the receiver does not exceed 0.1 microvolt per metre when measured at a distance of one mile from the receiver, or when tested in the manner set forth in sub-paragraph (2) of paragraph 16 of Part IV of the Second Schedule to these Rules.	From the date of coming into operation of these rules. From the date of coming into operation of these rules. One year from the date of coming into operation of these rules.

2. As to Rule 5.—Any ship which is provided with an emergency transmitter shall not be required to be provided with an emergency transmitter capable of transmitting type A2 waves before one year from the coming into operation of these rules if the emergency transmitter provided in the ship:—

- (i) complies with the requirements set forth in paragraph 1 of this Schedule with respect to emergency transmitters;
- (ii) is capable of transmitting type B waves; and
- (iii) is used only for distress traffic and for testing purposes.

3. As to Rule 5.—Any ship which is provided with a radio-telephone equipment forming part of an existing installation shall not be required to be provided with the equipment specified in the Third Schedule if the radio-telephone equipment provided in the ship complies with the requirements set forth in the following table, as from the respective dates set forth in the third column of that table:—

Item	Requirement	Date from which the requirement applies
1. Transmitter	(a) Must be capable of :— (i) transmitting type A3 waves on the radio-telephone distress frequency and at least 4 other frequencies within the band 1,600 kc/s to 2,850 kc/s.; (ii) maintaining throughout every transmission a frequency tolerance not exceeding plus or minus 0.02 per cent. (b) Must be modulated to a depth of not less than 70 per cent. at peak intensity in normal operation.	From the date of coming into operation of these rules. From the date of coming into operation of these rules. From the date of coming into operation of these rules.
2. Receiver	(a) Must be capable of :— (i) receiving type A3 waves on all frequencies from 1,600 kc/s to 2,850 kc/s. (ii) producing signals both in head-phones and by means of a loud speaker when the receiver input does not exceed 50 microvolts ; and (b) Must be such that radiation from the receiver does not exceed 0.1 microvolt per metre when measured at a distance of one mile from the receiver or when tested in the manner set forth in sub-paragraph 15(b) of paragraph 6 of the Third Schedule to these rules.	From the date of coming into operation of these rules. From the date of coming into operation of these rules. One year from the date of coming into operation of these rules.

4. *As to Rule 6.*—Nothing in rule 6 of these rules shall apply to equipment which is part of an existing installation, or to equipment, being equipment referred to in paragraph 1 or paragraph 4 of this Schedule, which is installed before the date of coming into operation of these Rules.

5. *As to Rule 8.*—Nothing in sub-rule (1) of rule 8 of these rules shall require any parts or wiring in an existing installation to be isolated automatically from all sources of electrical energy when the means of protection referred to therein are removed.

6. *As to Rule 10.*—(1) Nothing in rule 10 of these rules shall require the main equipment and emergency equipment forming part of a radio-telegraph installation, installed before the date of coming into operation of these Rules, to be electrically independent of each other until the respective dates set forth in the second column of the following table if the installation complies with the requirements of sub-paragraph (2) of this paragraph:—

Class of ship	Date
I	Date of coming into operation of these rules.
II (a)	Date of coming into operation of these rules.
II (b)	1st January, 1958
III	No limit as to time.

(2) The requirements referred to in sub-paragraph (1) of this paragraph are as follows:—

- (a) the main receiver and the emergency receiver shall be electrically independent of each other;
- (b) the transmitter shall comply with the requirements for the main and emergency transmitters as respectively set forth in Parts I and III of the Second Schedule, or as set forth in paragraph 1 of this Schedule; and
- (c) the transmitter shall be capable of operation both from the main source of electrical energy required by sub-rule (1) of rule 14 of these rules and from the emergency source of electrical energy required by sub-rule (2) of that rule.

7. *As to Rule 11.*—(1) Nothing in clause (c) of sub-rule (3) of rule 11 of these rules shall require the electric lamp referred to therein to be controlled by two-way switches before 1st September 1957.

(2) Nothing in clause (d) of the said sub-rule shall require the additional electric lamp referred to therein to be provided before 1st September 1957.

8. *As to Rule 6, Rule 17 and Rule 19.*—Nothing in rule 6, rule 17 or rule 19 of these rules shall apply to any autoalarm which complies with such of the requirements of the Indian Merchant Shipping (Wireless Telegraphy) Rules, 1934, as would have been applicable to it if the said rules had not been revoked. Provided that with effect from the date of coming into operation of these Rules the radiation from the autoalarm receiver shall not exceed 0.1 microvolt per metre when measured at a distance of one mile from the autoalarm or when tested in the manner set forth in sub-paragraph (10) (a) of paragraph 2 of the Seventh Schedule.

9. *As to Rule 26.*—Nothing in paragraph (d) of rule 26 of these rules shall require an electric lamp to be provided before 1st September 1957 for use in connection with an existing installation.

10. *As to Rule 31.*—(a) Any existing radio-telegraph installation in a motor lifeboat, and (b) any radio-telegraph installation installed in a motor lifeboat before 19th November, 1955, which complies with such of the requirements of the Indian Merchant Shipping (Life Saving Appliances) Rules, 1934, as would have been applicable to it if the said rules had not been revoked shall be treated as complying with the requirements specified in Part I of the Fifth Schedule to these



rules if it includes the equipment specified in the first column in the following table as from the respective dates set forth in the second column of that table:—

Equipment required	Date from which the requirement applies
(1) A copper earth connection, connected by at least three independent bolted connections to the hull in the case of a metal lifeboat or to a bare copper earthplate of area at least six square feet fitted below the water line in the case of a wooden lifeboat.	From the date of coming into operation of these rules.
(2) A transmitter which is :—	
(a) modulated to a depth of not less than 70 per cent	From the date of coming into operation of these rules.
(b) capable of :—	
(i) transmitting either type A2 or type B Waves on a frequency of 500 kc/s;	One year from the date of coming into operation of these rules.
(ii) transmitting type A2 waves on a frequency of 500 kc/s.	
(iii) maintaining throughout every Transmission on that frequency a frequency tolerance not exceeding plus or minus 0.5 per cent, subject to the provisions of paragraph 12 of this Schedule;	From the date of coming into operation of these rules.
(iv) transmitting over a normal range of 25 miles determined in the manner prescribed by rules 13 of these rules;	From the date of coming into operation of these rules.
(v) transmitting the alarm signal and the distress signal by means of automatic keying device; and	From the date of coming into operation of these rules.
(c) If installed after the coming into operation of these rules is capable of :	
(i) transmitting type A2 waves on a frequency of 8,364 kc/s; and	Date on which transmitter is installed.
(ii) maintaining throughout every transmission on that frequency a frequency tolerance not exceeding plus or minus 0.02 per cent.	

11. As to Rule 32.—Any existing portable radio-telegraph equipment (except spark transmitters) for lifeboats shall be treated as complying with the requirements specified in Part II of the Fifth Schedule if the transmitter forming part of such an equipment complies with the requirements specified in the following table with effect from the respective dates set forth in the second column of that table:—

Requirement	Date from which the requirement applies
The transmitter shall :—	
(a) be modulated to a depth of not less than 70 per cent ;	From the date of coming into effect of these rules.
(b) have an input of at least 10 watts to the anode of the final stage;	
(c) be capable of :—	
(i) transmitting type A2 waves on a frequency of 500 kc/s;	
(ii) maintaining throughout every transmission a frequency tolerance not exceeding plus or minus 0.5 per cent, subject to the provisions of paragraph 13 of this Schedule; and	
(iii) transmitting the alarm signal and distress signal by means of an automatic keying device.	

12. Nothing in these Rules shall, before the dates set forth in the following table, require any transmitter to be capable of maintaining a specified frequency

tolerance for period longer than 10 minutes from the commencement of transmission:—

Type of Transmitter	Date from which the requirement applies
Radiotelegraph . . . . .	One year from the date of coming into operation of these rules.
Radio telephone . . . . .	From the date of coming into operation of these rules

## THE SECOND SCHEDULE

[(See rule 5(1))]

### RADIOTELEGRAPH EQUIPMENT

#### PART I—MAIN RADIOTELEGRAPHY TRANSMITTER

1. **General.**—The main radiotelegraph transmitter (in this Part of this Schedule referred to as "the transmitter") shall be provided with any equipment which may be necessary to enable it to be operated from the supply of energy referred to in Sub-rule (1) of rule 14, and shall be capable of being quickly connected with the main and emergency aerials referred to in rule 12 of these rules.

2. **Types of waves and frequency range.**—The transmitter shall be capable of adjustment for the transmission of both type A1 and type A2 waves as may be required in the frequency range 405 kc/s to 525 kc/s.

3. **Transmitting frequencies.**—The transmitter shall be capable of transmitting continuously but not simultaneously, radiotelegraph signals on the frequencies of 500 kc/s, 410 kc/s and 512 kc/s and on two of the following frequencies:—

425 kc/s, 454 kc/s, 468 kc/s and 480 kc/s.

4. **Range of load impedance.**—The transmitter shall be capable of complying with all the requirements of this Part of this Schedule when connected to an artificial load, one side of which is earthed, consisting of a resistance of value R in series with a capacitance of value C in all of the combinations specified in the following table:—

C . . . . .	300	400	500	600	750	Picofarads
R . . . . .	3.6	2.8	2.2	2	1.9	Ohms

5. **Power of transmitter.**—(1) For the purposes of this paragraph the expression "the power of the transmitter" means the total power developed in the artificial load specified in paragraph 4 of this Part of this Schedule during a period when the transmitting key is depressed and does not include power dissipated in any component forming part of the transmitter.

(2) The maximum power of the transmitter shall not be less than W watts at any frequency within its range, W being determined by the formula:—

$$W = \frac{100}{1 + \frac{500}{f}}$$

where f is the frequency in kilocycles per second at which the test is made.

(3) The transmitter shall be so designed that its power can be reduced, either continuously or in steps of not more than six decibels, to a power between 2 watts and 9 watts.

(4) When adjusted to develop its maximum rated power the transmitter shall be capable of:—

- (a) continuous operation for the transmission of radiotelegraph signals at any speed up to the maximum specified in paragraph 8 of this Part of this Schedule, and
- (b) operation under steady marking or spacing conditions for a period of not less than fifteen minutes.

**6. Depth of modulation.**—The depth of modulation when the transmitter is transmitting type A2 waves shall be:—

- (1) not less than 80 and not more than 95 per cent. when the power of the transmitter is 25 watts or more;
- (2) not less than 70 and not more than 95 per cent. when the power of the transmitter is less than 25 watts.

**7. Note frequency.**—The note frequency of the transmitter shall not be less than 500 and not more than 1,200 c/s.

**8. Speed of transmission.**—The transmitter shall be capable of transmitting telegraph signals at all speeds up to 30 bauds without critical relay adjustment.

**9. Frequency stability.**—The transmitter shall be capable of maintaining a frequency tolerance of plus or minus 0.1 per cent. throughout every transmission without adjustment of controls, notwithstanding variations of the impedance of the aerial or any other load to which it is connected, or variations of supply voltage within plus or minus 10 per cent.

**10. Spurious and Harmonic components in the output signal.**—The radio-frequency output of the transmitter shall be entirely free from frequency components due to spurious oscillations in any part of the transmitter.

(2) The maximum power output of the transmitter at any harmonic of the radio frequency shall not exceed 20 milliwatts, whether type A1 or type A2 waves are being transmitted.

(3) When the transmitter is transmitting dots at a speed of 30 bauds, 95 per cent. of the total power radiated from the transmitter shall be radiated within plus or minus 100 c/s of the steady-state carrier frequency for type A1 waves and within plus or minus 2,500 c/s of the steady-state carrier frequency for type A2 waves.

**11. Operating facilities.**—(1) The transmitter shall be so arranged that the adjustments necessary to change it from operation on any one of the frequencies required by paragraph 3 of this Part of this Schedule to operation on any other of such frequencies can be made by one operator in a period not exceeding 10 seconds.

(2) The transmitter shall be capable of being operated on full power within 60 seconds after any part of the transmitter has been first switched on.

(3) If the transmitter is so designed and constructed that it is necessary to delay the application of certain voltages for a period after it has been switched on, the delay shall be automatically provided for by a delay switch.

(4) The transmitter shall be provided with a device which, when the transmitting key is not depressed, automatically brings into operation the main radiotelegraph receiver in conjunction with which the transmitter is operated. Means shall be provided for suppressing interference with reception, being interference caused by the transmitter.

(5) The transmitter shall be capable of being used in conjunction with an automatic keying device.

**12. Protective arrangements.**—The transmitter shall be so designed and constructed that when the transmitting key is depressed the aerial can be disconnected or the output can be short-circuited without damage being caused to any part of the transmitter. Means shall be provided for protecting the transmitter from damage caused by excessive current or voltage.

**13. Crystal holders.**—If the transmitter is designed for use with piezo-electric crystals it shall be suitable for use with a crystal holder complying with one of the following specifications:—

(a) a holder in the form of a rectangular parallelepiped surmounted by two projecting pins, such pins being:—

- (1) situated symmetrically with respect to the width and depth of the rectangular parallelepiped;

- (ii) 0·125 inches in diameter, subject to a tolerance of plus or minus 0·002 inches;
- (iii) spaced 0·75 inches apart, subject to a tolerance of plus or minus 0·005 inches;
- (iv) 0·56 inches in length, subject to a tolerance of plus or minus 0·005 inches; and
- (v) rounded at the ends—

Such parallelepiped shall be:—

1·81 inches in height, subject to a tolerance of plus 0·005 inches, or minus 0·015 inches;

1·6 inches in width, subject to a tolerance of minus 0·01 inches, and

0·75 inches in depth, subject to a tolerance of minus 0·01 inches, or

(b) a holder in the form of a rectangular parallelepiped surmounted by two projecting pins, such pins being:—

- (i) situated symmetrically with respect to the width and depth of the rectangular parallelepiped;
- (ii) 0·125 inches in diameter, subject to a tolerance of plus or minus 0·002 inches;
- (iii) spaced 0·5 inches apart, subject to a tolerance of plus or minus 0·002 inches;
- (iv) 0·56 inches in length, subject to a tolerance of plus or minus 0·005 inches; and
- (v) rounded at the ends.

Such parallelepiped shall be:—

1·34 inches in height, subject to a tolerance of plus 0·005 inches or minus 0·015 inches;

1·18 inches in width, subject to a tolerance of minus 0·1 inches, and

0·455 inches in depth, subject to a tolerance of minus 0·1 inches.

**14. Artificial aerial.**—An artificial aerial shall be provided which shall include an indicator or lamp to indicate the passage of radio-frequency currents, and shall be suitable for testing the transmitter on full power.

**15.** The main transmitter shall be equipped with suitable indicating instruments of approved accuracy to measure (1) the current in the antenna circuit, (2) the potential of the heating current applied to the cathode or cathode heater of each electron tube or a potential directly proportional thereto, and (3) the anode current of the radio frequency oscillator or amplifier which supplies power to the antenna circuit or, in lieu thereof, the anode current of such oscillator or amplifier plus the anode current of any other radio or audio-frequency oscillator(s) or amplifier(s) normally employed as part of the transmitter.

#### PART II—MAIN RADIOTELEGRAPHY RECEIVER

**1. General.**—(1) The main radiotelegraph receiver (in this Part of this Schedule referred to as “the receiver”) may consist of a single unit or of separate units, each of which is capable of reception on one or more of sections of the frequency range specified in paragraph 2 of this Part of this Schedule, and shall be capable of being quickly connected with the main and emergency aerials referred to in rule 12 of these rules.

(2) Each unit of the receiver shall bear a plate stating the frequency range it is intended to cover.

(3) The receiver shall not be constructed for operation in whole or in part from energy supplied by dry batteries.

**2. Frequency range and types of waves.**—The receiver shall be capable of receiving signals within the frequency ranges and of the types specified in the following table:—

Frequency range	Type of wave
15 to 20 kc/s (inclusive)	A1
100 to 160 kc/s (inclusive)	A1
160 to 1500 kc/s	A1, A2, B
1.5 to 4 Mc/s (inclusive)	A1, A2, A3
4 to 25 Mc/s (inclusive)	A1, A2, A3

**3. Reception facilities.**—The receiver shall be capable of headphone reception throughout the frequency ranges specified in paragraph 2 of this Part of this Schedule.

**4. Controls.**—The receiver shall be provided with:—

- (1) separate radio-frequency and audio-frequency gain controls;
- (2) a means for reducing the receiver gain when the transmitting key of the transmitter is depressed, so that signals may be heard without inconvenience to the operator or damage to the receiver when the transmitter is keyed at signalling speeds up to 30 words per minute;
- (3) a switch for disconnecting the device, if any, for reducing the effect of impulsive noise signals;
- (4) tuning controls which permit:—
  - (a) rapid tuning throughout the frequency range; and
  - (b) fine tuning by bandsread or other method, controlled by a knob of at least two inches diameter, the backlash of which shall not exceed one degree, and which shall be so geared that, after any backlash has been taken up, a rotation of one degree will not change the frequency of tune by more than the amount indicated in the following table:—

Frequency range	Change of frequency per degree: Part 10
15 kc/s to 1.5 Mc/s	3
1.5 Mc/s to 25 Mc/s	1

(5) accurate means of resetting tune; if a logging scale is provided for that purpose one inch on the scale shall correspond to a frequency change of not more than one per cent.

(6) a scale for use with the means of rapid tuning referred to in sub-paragraph (4)(a) of this paragraph; the scale shall be calibrated directly in frequency unless calibration charts are provided for use therewith.

**5. General method of testing.**—The receiver shall comply with the requirements of paragraphs 6 to 17, inclusive, of this Part of this Schedule, when tested in the following manner, except where another manner of testing is specified in the said paragraphs:—

- (1) An artificial aerial shall be used for the test and shall consist of a 75 ohm non-inductive resistor if the test is conducted at frequencies above 4 Mc/s, and a 10 Ohm resistor in series with a capacitor having any value between 200 and 600 picofarads if the test is conducted at frequencies below 4 Mc/s.
- (2) Type A2 signals used in the test shall be modulated to a depth of 30 per cent. and shall have a note frequency of 400 c/s.
- (3) The frequency of the interfering or unwanted signals applied shall not be restricted to the frequency range of the receiver.

- (4) The standard audio-frequency output level of the receiver for head-phone reception (hereafter in this Part of this Schedule referred to as "the standard output") shall be one milliwatt into a resistance substantially equal to the modulus of the impedance of the telephone receivers at 1,000 c/s.

6. **Selectivity.**—(1) Subject to the provisions of sub-paragraph (3) of this paragraph the selectivity preceding the final detector of the receiver shall be variable, either continuously or in steps, and shall satisfy the following requirements throughout the frequency ranges specified:—

Band with setting	Wide	Intermediate	Narrow	Very narrow
Frequency range	1.5 Mc/s to 25 Mc/s	160 Kc/s to 25 Mc/s	15 kc/s to 25 Mc/s	15 kc/s to 160 kc/s
Not more than 6 decibels to be obtained at frequencies removed from tune by	4 kc/s	1.5 kc/s	0.5 kc/s (does not apply below 100 kc/s)	
Discrimination of at least 30 decibels to be obtained at all frequencies removed from tune by	12 kc/s	6 kc/s	2.5 kc/s	0.75 kc/s
Discrimination of at least 60 decibels to be obtained at all frequencies removed from tune by	24 kc/s	12 kc/s	5 kc/s	5 kc/s
Discrimination of at least 90 decibels to be obtained at all frequencies removed from tune by	50 kc/s	35 kc/s	25 kc/s	25 kc/s
Provided that the discrimination against interfering signal of frequency greater than 1.6 Mc/s need not exceed 60 decibels.				

(2) If the receiver is a superhetrodyne receiver :—

(a) the image response ratios thereof shall not be less than the following :—

Frequency of wanted signals	Image response ratio
15 to 1,000 kc/s	80 decibels
1 to 1.5 Mc/s	70 "
1.5 to 7 Mc/s	60 "
7 to 15 Mc/s	40 "
above 15 Mc/s	25 "

(b) the intermediate frequency response ratios thereof shall not be less than the following:—

Intermediate frequency	Intermediate frequency response ratio
Between 140 and 1,600 kc/s	90 decibels
Outside the above limits	60 "

(3) Notwithstanding the provisions of sub-paragraph (1) of this paragraph the very narrow bandwidth setting of the receiver may be provided by an audio-frequency note filter which shall have:—

(a) a midband frequency of one kilocycle per second,

(b) a discrimination of at least 20 decibels at all frequencies outside a band 700 c/s wide,

and shall be capable of being switched in or out of circuit at will.

7. **Sensitivity.**—The standard output of the receiver shall be obtained at all bandwidth settings, and with the automatic gain control both on and off, with an input not exceeding the following levels:—

Frequency	Maximum input for type A1 waves	Maximum input for type A2 waves
15 — 160 kc/s	30 decibels above one micro-volt.	Does not apply.
160 — 1,500 kc/s	20 decibels above one micro-volt.	30 decibels above one micro-volt.
1.5 — 10 Mc/s	10 decibels above one micro-volt.	20 decibels above one micro-volt.
10 — 25 Mc/s	20 decibels above one micro-volt.	30 decibels above one micro-volt.

8. **Signal/noise ratio.**—(1) The signal/noise ratio of the receiver shall not be less than the ratio specified in the following table, when receiving any signal being either a type A1 signal or a type A2 signal, of the maximum input specified in paragraph 7 of this Part of this Schedule when the receiver gain is adjusted to give the standard output and the note filter, if any, is switched out of circuit:—

Frequency	Bandwidth setting	Signal/noise ratio
		decibels
15—160 kc/s	Narrow	10
160—1,500 kc/s	Intermediate	10
1.5—4 Mc/s	Wide	10
4—10 Mc/s	Wide	20
10—25 Mc/s	Wide	25

(2) For the purposes of this paragraph spurious whistles shall be regarded as noise.

9. **Automatic gain control.**—(1) The receiver shall be provided with an automatic gain control, capable of operating efficiently on types A1, A2 and A3 waves of all frequencies between 1,500 kc/s and 25 Mc/s, and which can be switched out of circuit.

(2) When the receiver is adjusted to give the standard output with a type A2 input signal 10 decibels above the appropriate maximum input specified in paragraph 7 of this Part of this Schedule on any frequency between 1.5 and 25 Mc/s:—

(a) an increase in input of 20 decibels shall result in an improvement in the signal/noise ratio of at least 15 decibels, and

(b) an increase in input of 60 decibels shall not increase the output by more than 10 decibels.

(3) The charge time constant of the automatic gain control system shall be between .05 and .2 seconds and the discharge time constant thereof shall be between 0.5 and 2 seconds.

10. **Output limiting.**—An increase in the input to the receiver by 60 decibels when:—

(1) the automatic gain control is switched off, and

(2) the receiver is adjusted to give the standard output with a type A1 input signal 20 decibels above the appropriate maximum input specified in paragraph

7 of this Part of this Schedule shall not increase the output by more than 10 decibels.

**11. Blocking.**—The change in the output of the receiver shall not exceed 3 decibels when:—

- (a) (i) the bandwidth is set at "intermediate",
- (ii) the automatic gain control is in operation,
- (iii) the receiver is adjusted to give the standard output with an input wanted signal of type A2 at a level of 60 decibels above one microvolt and of any frequency between 160 Kc/s and 25 Mc/s, and
- (iv) a type A1 input signal of a level of 70 decibels above one microvolt and at a frequency 10 Kc/s above or below the wanted frequency is then simultaneously applied; or
- (b) (i) the bandwidth is set at "narrow",
- (ii) the automatic gain control is switched off,
- (iii) the receiver is adjusted to give the standard output with an input wanted signal of type A1 at a level 30 decibels above one microvolt and of any frequency between 15 and 160 Kc/s, and
- (iv) a type A1 input signal of a level of 70 decibels above one microvolt and at a frequency 5 Kc/s above or below that of the wanted frequency is then simultaneously applied.

**12. Cross Modulation.**—The receiver shall not produce an output of level higher than 30 decibels below the standard output when:—

- (1) the bandwidth is set at "intermediate",
- (2) the automatic gain control is in operation,
- (3) the receiver is adjusted to give the standard output with an input wanted signal of type A2 at a level of 60 decibels above one microvolt and of any frequency between 160 Kc/s and 25 Mc/s.
- (4) the modulation of the signal is switched off, and
- (5) a type A2 input signal of level 90 decibels above one microvolt and frequency 10 Kc/s above or below the wanted frequency is then simultaneously applied.

**13. Intermodulation and Harmonic Production.**—An output exceeding the standard output shall not be produced by the receiver when:—

- (a) (i) the band width is set at "intermediate",
- (ii) the automatic gain control is switched off,
- (iii) the receiver is adjusted to give the standard output with an input wanted signal of type A2 at a level 30 decibels above one microvolt and at any frequency between 160 Kc/s and 550 Kc/s,
- (iv) the input wanted signal has been removed, and
- (v) any two interfering signals, one of type A1 and the other of type A2 each of a level 110 decibels above one microvolt and of such frequency as to give no appreciable output when applied alone and of which the frequency difference or frequency sum is the same as the frequency of the wanted signal, are then simultaneously applied; or
- (b) (i) the bandwidth is set at "intermediate",
- (ii) the automatic gain control is switched off,
- (iii) the receiver is adjusted to give the standard output with an input wanted signal of type A2 at a level 30 decibels above one microvolt and at any frequency between 280 Kc/s and 550 Kc/s,
- (iv) the input wanted signal has been removed, and
- (v) a type A2 signal, the frequency of which is half that of the wanted signal and at a level 116 decibels above one microvolt, is applied.

**14. Fidelity.**—The maximum change in level of the output of the receiver shall be less than eight decibels while the modulation frequency of an input signal of constant level and modulation depth is varied continuously from 300 c/s to 2,500 c/s when the bandwidth is set at "wide" for the reception of type A3 waves having a frequency above 1,500 Kc/s. The receiver shall comply with the foregoing requirements when the level and modulation depth of the input signal are such that the output of the receiver does not exceed the standard output.



**15. Non-Linear Distortion.**—With the automatic gain control switched on the total harmonic content of the audio-frequency output of the receiver at any output not exceeding the standard output shall not exceed:—

- (1) 5 per cent. with an input signal of a frequency of one megacycle per second at any level between 30 decibels and 80 decibels above one microvolt and sinusoidally modulated to a depth of 30 per cent. at 400 c/s;
- (2) 15 per cent. with such input signal modulated to a depth of 80 per cent. at 400 c/s.

**16. Tuning drift and stability.**—The tuning drift and stability of the receiver shall comply with the following requirements:—

(a) After the receiver has been switched on for 5 minutes the changes of tune frequency during any period of 5 minutes shall not exceed the value shown in the second column of the following table within the frequency ranges shown in the first column thereof:—

Frequency ranges	Maximum change (parts in 104)
15 kc/s to 1.5 Mc/s .. ..	3
1.5 Mc/s to 25 Mc/s .. ..	1

(b) A change of 5 per cent in any one of the supply voltages to the receiver shall not produce a maximum change of tune frequency exceeding the value shown in the second column of the following table within the frequency ranges shown in the first column thereof:—

Frequency ranges	Maximum change (parts in 104)
15 kc/s to 1.5 Mc/s .. ..	3
1.5 Mc/s to 25 Mc/s .. ..	1

(c) A change in ambient temperature of 5°C. within the range of 0°C. to 50°C. applied after the receiver has been switched on for one hour shall not produce a maximum change of tune frequency exceeding the value shown in the second column of the following table within the frequency ranges shown in the first column thereof:—

Frequency ranges	Maximum change (parts in 104)
15 kc/s to 1.5 Mc/s .. ..	10
1.5 Mc/s to 25 Mc/s .. ..	3

**17. Heterodyne note stability.**—The heterodyne note stability of the receiver shall be such that:—

- (1) the frequency of a heterodyne note which is initially one kilocycle per second shall not vary by more than 100 c/s when the appropriate input level specified in sub-paragraph (2) of paragraph 10 of this Part of this Schedule is increased by not more than 80 decibels;
- (2) it is possible at all input levels within the range specified in sub-paragraph (1) of this paragraph, to obtain a beat note of 200 c/s when tuning either towards or away from zero beat.

**18. Radiation.**—(1) The receiver when in use shall not produce a field exceeding Oil microvolt per meter when measured at a distance of one mile from the receiver.

(2) The receiver shall be deemed to comply with the requirements of sub-paragraph (1) of this paragraph if, when:—

- (a) the receiver is placed centrally in a screened earthed enclosure of dimensions at least six feet cube,
- (b) the earth terminal of the receiver is connected to the inside of the screen,

- (c) the areal terminal is connected through in unscreened four-turn rectangular search coil situated within the said enclosure and of dimensions one foot square and an unscreened lead to a resistive measuring instrument mounted outside the enclosure and having its other terminal earthed, and
- (d) the receiver is then energised and unscreened headphones are connected thereto, the power measured by the measuring instrument does not exceed  $4 \times 10^{-10}$  watts whatever the resistance of the measuring instrument or the adjustment of the receiver, notwithstanding that the search coil be short circuited or moved in any way, provided that it does not approach within six inches of the received case.

### PART III—EMERGENCY RADIO TELEGRAPH TRANSMITTER

1. **General.**—The emergency radio telegraph transmitter (in this Part of this Schedule referred to as "the transmitter"), shall be provided with all equipment necessary to enable it to operate from the emergency source of energy referred to in sub-rule (2) of rule 14 of these rules, and shall be capable of being quickly connected with the main and emergency aerials referred to in Rule 10 of these Rules.

2. **Type of waves and frequency range.**—The transmitter shall be capable of transmitting continuously type A2 waves on the frequency of 500 kc/s.

3. **Source of energy.**—(1) The transmitter shall be capable of operation from the emergency source of energy referred to sub-rule (2) of rule 14 of these rules.

(2) If a vibrator power unit is employed, a stand by vibrator, arranged in such manner that it may be immediately switched into circuit, shall be provided.

4. **Range of load impedance.**—When connected to an artificial load, one side of which is earthed, consisting of a resistance of value R in series with a capacitance of value C, the transmitter shall meet the requirements of this part of this Schedule with all combination of R and C specified in the following table:—

C	250	300	400	500	600	750	Picofarads
R	4	3.6	2.8	2.2	2	1.9	Ohms

5. **Power of transmitter.**—(1) For the purpose of this paragraph the power of the transmitter shall be taken to be the mean power developed in the artificial load during a period when the transmitting key is depressed, and shall not include power dissipated in any component forming part of the transmitter.

(2) The power of the transmitter shall not be less than 15 watts when the source of energy is developing 90 per cent, of its voltage.

(3) When adjusted to develop its maximum power, the transmitter shall be capable of:—

(a) continuous operation for the transmission of telegraph signals at any speed up to the maximum specified in paragraph 8 of this Part of this Schedule;

(b) operation under steady marking or steady spacing conditions for a period of not less than 15 minutes.

6. **Modulation.**—The carrier wave shall be modulated to a depth of not less than 75 per cent, and not more than 100 per cent.

(2) The harmonic content of the modulating envelope shall not exceed 30 per cent.

7. **Note Frequency.**—The note frequency of the transmitter shall not be less than 500 c/s or more than 1,200 c/s.

8. **Speed of Transmission.**—The transmitter shall be capable of transmitting telegraph signals at all speeds up to 25 bands without critical adjustment of relays.

9. **Frequency Stability.**—The transmitter shall be capable of maintaining a frequency tolerance of plus or minus 0.5 per cent, throughout every transmission without adjustment of controls notwithstanding variations of the impedance of the aerial or of any other load to which it is connected, or variation of Supply voltage within plus or minus 10 per cent.

**10. Operating Facilities.**—(1) The transmitter shall be capable of being operated on full power within six seconds after it has been switched on.

(2) the transmitter shall be capable of being used in conjunction with the automatic keying device specified in Part V of this Schedule.

**11. Protective Arrangements.**—The transmitter shall be so designed and constructed that when the transmitter is adjusted to develop its maximum power and when the transmitting key is depressed the aerial can be disconnected or the output can be short-circuited without damage being caused to any part of the transmitter.

**12. Crystal Holders.**—If the transmitter is designed for use with piezo-electric crystals it shall be suitable for use with a crystal holder specified in paragraph 13 of Part I of this Schedule.

**13. Artificial Aerial.**—An artificial aerial shall be provided which shall include an indicator or lamp to indicate the passage of radio-frequency currents and shall be suitable for testing the transmitter on full power.

**14. Meter.**—The transmitter shall be provided with an aerial ammeter.

**15. Use for Normal Communications.**—If the transmitter is used otherwise than in an emergency or for the tests required by sub-rule (4) (b) of rule 20, of these rules and paragraphs 3, 6, 8, 9, 10 and 11 of Part I of this Schedule shall apply in relation to it as they apply in relation to the main transmitter.

#### PART IV—EMERGENCY RADIOTELEGRAPH RECEIVER

**1. General.**—The emergency radiotelegraph receiver (in this Part of this Schedule referred to as "the receiver") shall be capable of being rapidly connected to the emergency aerial referred to in rule 12.

**2. Frequency Range and Types of Waves.**—Subject to the provision of paragraph 3 of this Part of this Schedule, the receiver shall be capable of receiving type A2 waves and type B waves in each case throughout the frequency range 488 kc/s to 513 kc/s, and for that purpose a wide bandpass shall be provided.

**3. Reception Facilities.**—The receiver shall be capable of headphone reception and loud speaker reception throughout the frequency range specified in paragraph 2 of this part of this Schedule, unless two emergency receivers are provided, one of which is capable of headphone reception, with or without tuning, throughout the said range and the other of which is capable of loud speaker reception throughout the said range without tuning.

**4. Source of Energy.**—(1) The receiver shall be capable of operation both from the main source of electrical energy required by sub-rule (1) of rule 14 and the emergency source of electrical energy required by sub-rule (2) of that rule. Provided that if the ship is equipped with two emergency receiver as aforesaid, the receiver capable of loud-speaker reception shall be required to be capable of operation only from the said main source of electrical energy.

(2) The receiver shall comply with the requirements of paragraphs 7 to 15 inclusive of this Part of this Schedule notwithstanding variations in the supply voltage within the range:—

(i) plus 5 per cent. and minus 10 per cent. of the nominal voltage when operated from the emergency source of electrical energy required by Sub-rule (2) of rule 14, and

(ii) plus and minus 10 per cent. of the nominal voltage when operated from the main source of electrical energy required by sub-rule (1) of rule 14.

**5. Controls.**—The receiver shall be provided with:—

(1) a manual gain control;

(2) if only a single emergency receiver is provided, a switch for changing the receiver from operation from the main source of electrical energy referred to in sub-rule (1) of rule 14 to the emergency source of electrical energy referred to in sub-rule (2) of that rule; and

- (3) If the receiver is designed to tune to frequencies additional to the frequency range specified in paragraph 2 of this Part of this Schedule, a switch for changing reception to the frequency range referred to in that paragraph.

**9. Method of Testing.**—The receiver shall comply with paragraphs 7 to 15 inclusive of this part of this Schedule when tested in the following manner, except where another manner of testing is specified in the said paragraphs:—

- (1) An artificial aerial shall be used for the test and shall consist of a 10 ohm resistor in series with a capacitor having any value between 200 and 600 picofarads.
- (2) Type A2 signals used in the test shall be modulated to a depth of 30 per cent. and shall have a note frequency of 400 c/s.
- (3) The standard audio-frequency output level (hereafter in this Part of this Schedule referred to as "the standard output") of the receiver shall be:—
  - (a) for headphone reception 10 decibels below one milliwatt into a resistance substantially equal to the modulus of the impedance of the telephone receivers at 1,000 c/s,
  - (b) for loud-speaker reception 17 decibels above one milliwatt into a resistance that loads the output valve with the load appropriate to the valve.

**7. Selectivity.**—(1) Subject to the provisions of sub-paragraph (2) of this paragraph, the selectivity preceding the final detector of the receiver shall, if it is provided with a wide band-pass, satisfy the following requirements at the relative frequencies specified:—

- (a) not more than 4 decibels discrimination relative to the maximum response at frequencies between 488 and 513 Kc/s inclusive;
- (b) at least 30 decibels discrimination relative to the maximum response at frequencies below 475 Kc/s and above 545 Kc/s;
- (c) at least 60 decibels discrimination relative to the maximum response at frequencies below 450 Kc/s and above 550 Kc/s. and
- (d) at least 90 decibels discrimination relative to the maximum response at frequency below 400 Kc/s and above 600 Kc/s.

(2) If the receiver is a superheterodyne receiver the intermediate frequency response ratio shall not be less than 60 decibels provided that the intermediate frequency is outside the limits 140 Kc/s to 1,600 Kc/s.

(3) If an emergency receiver, being a receiver cable of headphone reception, is tunable over the frequency range specified in paragraph 2 of this Part of this Schedule the selectivity preceding the final detector at all frequencies within the said range shall satisfy the requirements set forth in the following table:—

Discrimination	Corresponding band width
10 decibels	Not less than 4 k/c/s
30 "	Not greater than 50 k/c/s
60 "	Not greater than 100 k/c/s
Greater than 60 decibels	Greater than 100 k/c/s

**8. Sensitivity.**—The standard output shall be obtained with an input signal of type A2 not exceeding 40 decibels above one microvolt.

**9. Signal noise Ratio.**—The Signal/noise ratio, with an input signal of type A2 of 40 decibels above one microvolt and when the manual gain control is adjusted to give the standard output, shall not be less than 20 decibels.

**10. Blocking.**—If the receiver is intended for loudspeaker reception the change in the output of the receiver shall not exceed 3 decibels when—

- (1) the receiver is adjusted to give the standard output with an input wanted signal of type A2 at a level of 60 decibels above one microvolt and of a frequency of 500 Kc/s, and

- (2) a type A1 input signal at a level of 100 decibels above one microvolt and of a frequency of 440 Kc/s or 560 Kc/s is then simultaneously applied.

11. **Cross modulation.**—If the receiver is intended for loud-speaker reception the receiver shall not produce an output of level higher than 30 decibels below the standard output when:—

- (1) the receiver is adjusted to give the standard output with an input wanted signal of type A2 at a level of 60 decibels above one microvolt and of a frequency of 500 Kc/s,
- (2) the modulation of the signal is switched off, and
- (3) a type A2 signal at a level of 90 decibels above on microvolt and of a frequency of 425 Kc/s or 575 Kc/s is then simultaneously applied.

12. **Intermodulation and Harmonic Production.**—If the receiver is intended for loud-speaker reception an output exceeding the standard output shall not be produced by the receiver when:—

- (1) the receiver is adjusted to give the standard output with an input wanted signal of type A2 at a level of 40 decibels above one microvolt and of a frequency of 500 Kc/s,
- (2) the input wanted signal has been removed, and
- (3) (a) any two interfering signals, one of type A1 and the other of type A2, each at a level of 110 decibels above one microvolt and of such frequency as to give no appreciable output when applied alone, and of which the frequency sum or difference is 500 Kc/s, are then simultaneously applied, or  
(b) a signal of type A2 at a level of 116 decibels above on microvolt and of a frequency of 250 Kc/s is applied.

13. **Output Limiting.**—If the receiver is intended for loudspeaker reception the receiver shall be provided with an efficient and automatic means of reducing the gain during the reception of strong signals.

14. **Tuning Drift and Stability.**—The tuning drift and the stability of the receiver shall be such that within five minutes of the receiver being switched on the requirements of paragraph 7 of this Part of this Schedule shall be met.

15. **Fidelity.**—The fidelity of the receiver shall be such that a change in the audio-frequency output shall be less than 8 decibels when the modulation frequency of the input signal is varied continuously from 400 c/s to 1,400 c/s, the level and modulation depth of the input signal being kept constant. For the purposes of this paragraph the input signal may have any level and depth of modulation provided the output of the receiver does not exceed the standard output.

16. **Radiation.**—(1) The receiver when in use shall not produce a field exceeding 0.1 microvolt per metre when measured at a distance of one mile from the receiver.

(2) The receiver shall be deemed to comply with the requirement of subparagraph (1) of this paragraph if, when:—

- (a) the receiver is placed centrally in a screened earthed enclosure of dimensions at least six feet cube,
- (b) the earth terminal of the receiver is connected to the inside of the case,
- (c) the aerial terminal is connected through an unscreened four-turn rectangular search coil situated within the said enclosure and of dimensions one foot square and an unscreened lead to a resistive measuring instrument mounted outside the enclosure and having its other terminal earthed, and
- (d) the receiver is then energised and unscreened head-phones are connected thereto, the power measured by the measuring instrument does not exceed  $4 \times 10^{-10}$  watts whatever the resistance of the measuring instrument or the adjustment of the receiver, and notwithstanding that the search coil is short-circuited or moved in any way, without approaching within six inches of the receiver case.

## PART V AUTOMATIC KEYING DEVICE

1. The automatic keying device (in this Part of this Schedule referred to as "the device") shall be capable of:—

- (1) being connected in place of the manual transmitting key by a jack or other efficient means, to
  - (a) the main radiotelegraph transmitter,
  - (b) the emergency radiotelegraph transmitter, and
  - (c) the auto-alarm test signal generator referred to in paragraph 1 of the Seventh Schedule to these rules;
- (2) When connected to any of the aforesaid equipment,
  - (a) keying automatically the alarm signal specified in paragraph 3 of this Part of this Schedule and immediately thereafter stopping and opening the keying circuit unless re-set or re-wound; and
  - (b) keying automatically the distress call specified in paragraph 4 of this Part of this Schedule in such manner that if the device is used without attention the automatic keying of the distress call will be repeated once every twelve minutes.

The device shall not be capable of keying any signals other than those specified in paragraphs 3 and 4 of this Part of this Schedule.

2. When switched out of circuit after transmission of the distress call, the device shall be capable of being re-set by automatic or manual means so that after the device has again been switched into circuit keying shall commence within ten seconds at the beginning of the distress call.

If the re-setting is by manual means the device shall include a means for indicating when re-setting is necessary.

3. The alarm signal referred to in sub-paragraph (2) of the paragraph 1 of this Part of this Schedule shall consist of twelve four second dashes separated by one second spaces, the length of the dashes and spaces being maintained within a tolerance of plus or minus 0.2 second.

4. (1) the distress call referred to in the said sub-paragraph shall consist of the following signals in the following order:—

- (a) the distress signal.....repeated three times;
- (b) the morse characters for the word DE; and
- (c) a long dash:

Provided that the morse characters for the word DE may be omitted.

The characters of the distress signal shall be keyed at a speed of not more than 16 words per minute and the duration of the long dash shall not be less than 20 seconds. The total length of the distress call shall not exceed 90 seconds.

(2) The mechanism for keying the distress call specified in sub-paragraph (1) of this paragraph shall be such that it can be readily adapted so as to enable the device to key, within a period of 90 seconds a distress call consisting of the following signals in the following order:—

- (a) the distress signal.....repeated three times;
- (b) the morse characters for the word DE;
- (c) the morse characters for the ship's callsign three times; and
- (d) a long dash having a duration of at least 20 seconds.

5. If the device is electrically operated, the source of electrical energy by which it is operated shall be the emergency source of electrical energy referred to in sub-rule (2) of rule 14.

## THIRD SCHEDULE

[See Rule 5(2)]

*Radiotelephone Installation*

1. **Definition.**—In this Schedule the expression "the equipment" includes a radiotelephone transmitter and receiver, and all other equipment necessary for the operation of the installation, but does not include an aerial.

**2. Types of Wave and Frequency Range.**—(1) The equipment shall be capable of adjustment for the transmission and reception of both type A2 and type A3 waves on any frequency within the frequency range 1,600 kc/s to 3,800 kc/s.

(2) The facilities for the transmission of type A2 waves shall be so designed that they can be rendered incapable of operation by internal disconnection.

**3. Operating Frequencies.**—The equipment shall be capable of transmitting and receiving type A2 and type A3 waves, and shall be capable of being set for both transmission and reception on the radiotelephone distress frequency and on at least the number of spot frequencies specified in the following table, and selected at any points within the relative frequency limits therein specified. The transmitter shall not be capable of being operated otherwise than on spot frequencies:

Number of spot frequencies		Frequency limits
Transmitting	Receiving	
4 and 2 and 1	4 and 2 and 1	1,600 to 2,850 kc/s 3,500 to 3,800 kc/s 1,600 to 3,800 kc/s

**4. Power Supply.**—The equipment shall be capable of being operated from the supply of electrical energy required by rule 25.

**5. Transmitter.**—(1) Selection of any of the transmitter frequencies referred to in paragraph 3 of this Schedule shall be by a single switch or push button.

(2) The transmitter shall comply with the requirements specified in this Schedule when connected to each of the artificial aerials specified in the following table:—

Frequency range	Artificial aerials (All elements in series)		
	Resistance Ohms	Capacitance Picofarads	Inductance Microhenrys
Below 3 Mc/s	6	250	..
Above 3 Mc/s	10	250	..
	40	250	8

(3) The total carrier power delivered by the transmitter to the aforesaid artificial lead (not including power dissipated in an aerial tuning inductor or any other component forming part of the transmitter) shall on any frequency between 1,600 kc/s and 3,800 kc/s be not less than 15 watts and not more than 100 watts, and means shall be provided for reducing such power to a power between 5 watts and 10 watts.

(4) A peak limiter shall be provided to prevent over-modulation of the transmitter.

(5) The speech modulation of the transmitter shall be such that:—

(a) the frequency response of the microphone and transmitter together shall not vary by more than 7.5 decibels from a value which rises at the rate of 6 decibels per octave from 250 c/s to 2,500 c/s.

(b) the response relative to the peak response shall not be higher than:—

(i) minus 20 decibels at all frequencies above 3,500 c/s, and not above 5,000 c/s; and

(ii) minus 40 decibels at all frequencies above 5,000 c/s.

(6) The modulating system shall be such that the peak modulation of the transmitter lies between 80 and 95 per cent. for any sound pressure the root mean square value of which, measured in the plane of the microphone mouth-piece with a pure wave of 1,000 c/s, lies between 25 dynes and 100 dynes per square centimetre.

(7) With the transmitter operating at its rated power or below and modulated to a depth of 90 per cent. by a sinusoidal wave of frequency 400 c/s applied to the microphone terminals and with the peak limiter rendered inoperative, the harmonic content of the modulated output voltage shall not exceed 10 per cent.

(8) The transmitter shall be capable of maintaining a frequency tolerance of plus or minus 0.02 per cent, throughout every transmission without adjustment of any control and notwithstanding variations of the impedance of the aerial or other load to which it is connected, or variations of supply voltage within plus or minus 10 per cent.

(9) (a) The radio-frequency output of the transmitter shall be free from frequency components due to spurious oscillations in any part of the equipment.

(b) The output power at any harmonic of the radio-frequency shall not exceed 0.1 watt.

(c) With the microphone open or short-circuited:—

(i) the total noise and hum power in the output wave shall be at least 20 decibels below the carrier power;

(ii) the total noise and hum power contained in the side-bands corresponding to audio-frequencies between the limits of 250 c/s and 3,000 c/s shall be at least 40 decibels below the carrier power.

(10) The transmitter shall be such that:—

(a) is not more than 10 seconds one operator can carry out all such adjustments as are necessary to change the transmitter from operation on any one of the frequencies referred to in paragraph 3 of this Schedule to operation on any other of such frequencies;

(b) if the transmitter is so designed and constructed that it is necessary to delay the application of certain voltages for a period after it has been switched on the delay shall be automatically provided by a delay switch;

(c) an indicator shall show when the transmitter is ready for operation; and

(d) a skilled person can make alternations in the spot frequencies within the limits specified in paragraph 3 of this Schedule without removing the installation from the ship.

(11) If the transmitter is adjusted for the transmission of type A2 waves:

(a) the depth of modulation shall not be less than 70 per cent and not more than 100 per cent;

(b) the note frequency shall not be less than 500 c/s and not more than 1,200 c/s; and

(c) the transmitter shall be capable of transmitting telegraph signals at all speeds up to 30 bands.

(12) The transmitter shall be so designed and constructed that when it is adjusted for maximum power the aerial may be disconnected or the output short-circuited without damage being caused to any part of the installation. Means shall be provided for protecting the transmitter from damage caused by excessive current or voltage.

(1) *Meter.*—The transmitter shall be provided with an aerial ammeter.

6. *Receiver.*—(1) Means shall be provided to enable each of the receiver spot frequencies referred to in paragraph 3 of this Schedule to be selected by a single operation.

(2) The receiver shall be capable of both telephone and loud-speaker reception.

(3) The receiver shall be provided with:—

(a) a manual audio-frequency gain control; and

(b) an automatic gain control capable of efficient operation on type A2 and type A3 waves.



(4) Any peak limiter or other device included in the detector or output circuits of the receiver for the purpose of reducing the effect of impulsive noise signals shall be capable of being disconnected by means of a switch.

(5) The receiver shall comply with the requirements of sub-paragraphs (6) to (14), inclusive, of this paragraph when tested in the following manner, except where another manner of testing is specified in the said sub-paragraphs:—

- (a) artificial aerials with the characteristics specified in the table set forth in sub-paragraph (2) of paragraph 5 of this Schedule shall be used for the test;
- (b) type A2 signals used for the test shall be modulated to a depth of 30 per cent, with a note frequency of 400 c/s,
- (c) the standard audio-frequency output of the receiver (in this paragraph referred to as the "standard output") shall be:—
  - (i) for telephone receiver reception, one milliwatt into a resistance which is substantially equal to the modulus of the impedance of the telephone at 1,000 c/s;
  - (ii) for loud-speaker reception, 50 milliwatts into a resistance which loads the output valve with the load appropriate to the valve.

6 (a) The selectivity of the receiver measured at a point immediately preceding the final detector shall satisfy the following requirements at the relative frequencies specified:—

Discrimination of not more than 6 decibels to be obtained at frequencies removed from tune by . . . . .	3 kc/s.
Discrimination of at least 30 decibels to be obtained at frequencies removed from tune by . . . . .	7.5 kc/s.
Discrimination of at least 60 decibels to be obtained at frequencies removed from tune by . . . . .	15 kc/s.
Discrimination of at least 80 decibels to be obtained at frequencies removed from tune by . . . . .	30 kc/s.

(b) If the receiver is a superheterodyne receiver:—

- (i) the image discrimination shall not be less than 35 decibels at frequencies above 3 Mc/s and not be less than 40 decibels at frequencies below 3 Mc/s, and
- (ii) the intermediate frequency response ratio shall not be less than the following:—

Intermediate frequency	Intermediate frequency response ratio
Between 140 and 1,600 kc/s . . . . .	80 decibels
Outside the above limits . . . . .	60 decibels

(7) The signal/noise ratio of the output of the receiver shall be at least 20 decibels when the receiver is adjusted to give the standard output with an input signal of type A2 at a level of 30 decibels above one microvolt.

(8) The automatic gain control shall be such that when the receiver is adjusted to give the standard output with an input signal of type A2 at a level of 30 decibels above one microvolt:—

- (a) an increase in input of 20 decibels will result in an improvement in the signal/noise ratio of at least 15 decibels; and
- (b) an increase in input of 50 decibels will not increase the output by more than 10 decibels.

(9) The change in output of the receiver shall not exceed 3 decibels when the receiver is adjusted to give the standard output with an input wanted signal of type A2 at a level of 60 decibels above one microvolt and a type A1 input signal is simultaneously applied at a level of 100 decibels above one microvolt and at a frequency of 20 kc/s above or below the wanted frequency.

(10) An output of level higher than 30 decibels below the standard output shall not be produced when the receiver is adjusted to give the standard output with an input wanted signal of type A2 at a level of 60 decibels above one microvolt, the modulation of the signal generator has been switched off, and a type A2 input signal is simultaneously applied at a level of 90 decibels above one microvolt and at a frequency of 20 kc/s above or below the wanted frequency.

(11) An output exceeding the standard output shall not be produced when the receiver is adjusted to give the standard output with an input signal of type A2 at a level of 30 decibels above one microvolt, the wanted signal has been removed, and two interfering signals are simultaneously applied, one of type A1 and one of type A2, each of level 10 decibels above one microvolt, of which the frequency sum or difference is the same as the frequency of the wanted signal, but neither of which will give an appreciable output when modulated and applied alone.

(12) The maximum change in level of the audio-frequency output shall be less than 8 decibels when the modulation frequency of the input signal is varied continuously from 250 c/s to 3,000 c/s, the input signal remaining constant in level and depth of modulation. When the modulation frequency is increased above 3,000 c/s the output shall fall rapidly. The input signal may have any level and depth of modulation provided the output of the receiver does not exceed the standard output.

(13) The total harmonic content of the audio-frequency output voltage of the receiver at any output not exceeding the standard output shall not exceed:—

- (a) 5 per cent with an input signal at any level between 40 and 80 decibels above one microvolt and sinusoidally modulated to a depth of 30 per cent, at 400 c/s; or
- (b) 15 per cent with an input signal as prescribed in (a) but modulated to a depth of 80 per cent at 400 c/s.

(14) Each frequency of tune referred to in paragraph 3 of this Schedule shall be maintained within one kilocycle per second of its nominal value notwithstanding variation in the supply voltage of plus or minus 10 per cent and notwithstanding ambient temperature changes from minus 10°C to plus 40°C.

(15) (a) The receiver shall not in normal service produce a field exceeding 0.1 microvolt per metre when measured at a distance of one mile from the receiver.

(b) The receiver shall be deemed to comply with the requirement of subparagraph (a) of this paragraph if, when:—

- (i) the receiver is placed centrally in a screened earthed enclosure of dimensions at least six feet cube.
- (ii) the earth terminal of the receiver is connected to the inside of the screen,
- (iii) the aerial terminal is connected through an unscreened four-turn rectangular search coil situated within the said enclosure of dimensions one foot square and an unscreened lead to a resistive measuring instrument mounted outside the enclosure and having its other terminal earthed, and
- (iv) the receiver is then energised and unscreened headphones are connected thereto,

the power measured by the measuring instrument does not exceed  $4 \times 10^{-10}$  watts whatever the resistance of the measuring instrument or the adjustment of the receiver, and notwithstanding that the search coil is short-circuited or moved in any way without approaching within six inches of the receiver case.

**7. Facilities for two-way communication.**—(1) The equipment shall be capable of changing instantaneously from transmitting to receiving and *vice versa* by means of a pressel or other single switch, aerial change-over relays, and such other devices as are necessary for that purpose. If, in addition, a voice-operated device is provided for that purpose the operating lag shall not exceed

10 milli-seconds, and the release lag shall not be less than 150 milli-seconds and not more than 200 milli-seconds.

(2) Means shall be provided for protecting the receiver from damages when the equipment is transmitting.

(3) Means shall be provided to assure automatically that at all times when the microphone is in use the loud-speaker is disconnected.

8. **Size of Controls.**—All controls on the receiver shall be of such size as to permit normal adjustments being performed by a person wearing thick gloves.

9. **Crystal Holders.**—If the installation is designed for use with pieze-electric equipment appropriated for use only below deck or in a deckhouse or other 13 of Part I of the Second Schedule to these Rules.

#### THE FOURTH SCHEDULE

(See Rule 6)

##### *Climatic and Durability Tests*

##### 1. In this Schedule:—

(1) references to Class B equipment shall be construed as references to equipment appropriated for use only below deck or in a deckhouse or other similar compartment; and

(2) references to Class Z equipment shall be construed as references to equipment appropriated for use or storage in the open or in an open boat.

2. (1) Class B equipment shall be subjected to the tests named opposite the letter B in the table given in sub-paragraph 4 of this paragraph, and Class X equipment shall be subjected to the tests named opposite the letter X in that table.

(2) All such tests shall be conducted in the order in which they appear in the aforesaid table.

(3) At any time when the equipment is required by the provisions of paragraph 3 of this Schedule to be kept working for the purpose of such tests, power shall be supplied thereto at the voltage at which such equipment is designed to be operated.

(4) TABLE

Nature of Test	Classes of equipment to which the test shall be applied
(1) Vibration test . . . . .	B and X
(2) Bump test . . . . .	B and X
(3) Dry heat test . . . . .	B and X
(4) Damp heat test . . . . .	B and X
(5) Low temperature test . . . . .	B and X
(6) Rain test . . . . .	X
(7) Immersion test . . . . .	X
(8) Corrosion test—salt water . . . . .	B and X
(9) Corrosion test—acid fumes (if a battery is included in the equipment) . . . . .	B and X
(10) Mould growth test . . . . .	X

3. The tests referred to in paragraph 2 of this Schedule shall be conducted respectively as follows:—

(1) **Vibration Test.**—The equipment, complete with its chassis covers and shock absorbers (if any) shall, in its normal operating position, be clamped to a vibration table. The table shall be vibrated at all frequencies between 0 and 12½ cycles per second at an amplitude of plus or minus 0.16 cm. during which period the equipment shall be kept working continuously. The table shall be so vibrated for three periods each of which shall be of eight minutes duration. Throughout each such period the direction of the vibration shall be perpendicular to the direction of the vibrations during the other two periods.

- (2) *Bump Test*.—The equipment shall be subjected to not less than 500 humps at a constant rate of between one and four humps per second with a free drop of at least 2.5 cm.
- (3) *Dry Heat Test*.—(a) Class B equipment shall be placed in a chamber which is maintained for a period of two hours at a constant temperature of 55°C within a tolerance of plus or minus 1°C during which period the equipment shall be kept working continuously.
- (b) Class X equipment shall be placed in a chamber which is maintained for a period of ten hours at a constant temperature of 70°C, within a tolerance of plus or minus 1°C during which period the equipment shall not be worked or tested. The said chamber shall then be cooled to a constant temperature of 55°C, within a tolerance of plus or minus 1°C, and the equipment shall be kept working continuously at that temperature for a period of two hours.
- (4) *Damp Heat Test*.—The equipment shall be prepared for the damp heat test in the following manners:—
  - (a) The equipment shall be placed in a chamber which within a period not exceeding two hours shall be heated from room temperature to 40°C and shall be brought to a relative humidity of not less than 95 per cent.
  - (b) The chamber shall be kept at a temperature of 40°C within a tolerance of plus or minus 1°C for a period of 12 hours, and at a relative humidity of not less than 95 per cent.
  - (c) At the beginning of the last 60 minutes of such period, all accessible surfaces and components shall be wiped dry and any fans or drying lamps provided in the equipment shall be switched on.

After the fans or drying lamps have been in operation for 30 minutes and while the temperature of the chamber is still 40°C, subject to the aforesaid tolerance, the equipment shall be tested.

After the equipment has been tested the temperature of the chamber shall, in preparation for the low temperature test, be allowed to fall below 25°C, the equipment remaining in the chamber.

- (5) *Low Temperature Test*.—(a) Class B equipment shall be exposed to a temperature of minus 15°C at normal atmospheric pressure for a period of not less than twelve hours.
- (b) Class X equipment shall be exposed to a temperature of minus 25°C at normal atmospheric pressure for a period of not less than twelve hours.
- (6) *Rain Test*.—The equipment shall be placed in a chamber fitted with eight shower heads, the discharge end of which shall consist of flat, nonrustable metal plate, 0.16 cm. thick, having thirty-six holes each of 0.1 cm. diameter evenly spaced in concentric circles in the following manner:—
  - 16 holes on the periphery of a circle of 5.1 cm. diameter.
  - 8 holes on the periphery of a circle of 3.8 cm. diameter.
  - 8 holes on the periphery of a circle of 2.5 cm. diameter.
  - 4 holes on the periphery of a circle of 1.3 cm. diameter.

The said shower heads shall be arranged at a distance of not less than 50 cm. and not more than 80 cm. from the equipment in such a manner that spray from four of such shower heads is directed downwards at an angle of 45° at each of the four uppermost corners of the equipment, and the spray from the other four shower heads is directed horizontally at the centre of each area of the four sides of the equipment. Fresh water at room temperature and at a static pressure of not less than 15 or more than 25 pounds per square inch shall be sprayed on to the equipment from the aforesaid shower heads for a period of one hour with the equipment in the position in which it is normally operated. Throughout the test the equipment shall be rotated at between 12 and 20 revolutions per minute about a vertical axis passing through the centre of the equipment.

- (7) *Immersion Test*.—The equipment in the condition in which it will normally be kept on board ship shall be immersed in water the surface of which is at least 10 cm. above the highest point of the equipment and shall remain for a period of one hour. Upon its removal from the water the equipment shall be drained of water.
- (8) *Corrosion Test (Salt Water)*.—The equipment shall be placed in a chamber fitted with apparatus capable of spraying in the form of a

fine mist either natural sea water or tap water containing the following salts in solution:—

Sodium Chloride	2.7 per cent.
Magnesium Chloride	0.6 per cent.
Calcium Chloride	0.1 per cent.
Potassium Chloride	0.07 per cent.

The quantity of each salt shall be subject to a tolerance of plus or minus 10 per cent.

Such spraying apparatus shall be such that the products of corrosion cannot mix with the sea water or solution contained in the spray reservoir. The equipment shall be sprayed simultaneously on all its external surfaces with the sea water or solution for a period of one hour and shall be kept working continuously for the last thirty minutes thereof. The equipment shall immediately thereafter be stored for a period of seven days at a temperature of 40° C. within a tolerance of plus or minus 1° C. at a relative humidity of not less than 60 per cent. and not more than 80 per cent. The equipment shall be sprayed and stored as aforesaid on four separate occasions.

(9) *Corrosion Test (Acid Fumes).*—Any battery included in the equipment shall be fully charged and shall then be fitted into the equipment. If the arrangements are such that the battery can be charged without being removed from the equipment, the battery shall continue to be charged at a maximum rate appropriate to it for a period of twenty-four hours. The equipment shall immediately thereafter be stored for a period of four weeks at a temperature of 40° C. within a tolerance of plus or minus 1° C. at a relative humidity of not less than 60 per cent. and not more than 80 per cent.

(10) *Mould Growth Test.*—The equipment shall be inoculated by spraying with an aqueous suspension of mould spores containing all the cultures named in column A or all the cultures named in column B of the following table:—

A	B
Aspergillus niger;	Aspergillus niger;
Aspergillus amstelodami;	Aspergillus amstelodami;
Paecilomyces varioti	Aspergillus versicolor;
Stachybotrys atra ;	Stachybotrys atra;
Penicillium brevi-compactum ;	Penicillium brevi-compactum;
Penicillium cyclopium;	Caldosporum heabasum.
Chetomium globosum.	

Immediately after it has been so sprayed the equipment shall be placed in a chamber, the temperature of which shall be maintained at any fixed value within the range 31° C. to 33° C. inclusive and controlled to within a tolerance of plus or minus 1° C. at a relative humidity of not less than 95 per cent. The equipment shall remain in the said chamber for a period of twenty-eight days.

#### THE FIFTH SCHEDULE

(See Rules 31 and 32)

#### Radiotelegraph Equipment for Lifeboats

##### PART I—FIXED EQUIPMENT

1. **General.**—(1) The radiotelegraph equipment for lifeboats (in this Part of this Schedule referred to as "the equipment") shall include a radiotelegraph transmitter and receiver, an aerial and earth system, a source of energy, and all other equipment necessary for the operation of the installation.

(2) The equipment shall be so designed that an unskilled person can readily cause it to transmit the signals referred to in paragraph 5 of this Part of this Schedule.

(3) The purpose of all controls not required for transmitting the said signals shall be clearly and permanently indicated.

(4) Simple instructions for the operation of the equipment on the frequencies specified in sub-paragraph (1) of paragraph 4 and sub-paragraph (1) of paragraph 6 of this Part of this Schedule shall be affixed in clear and permanent form to or near the equipment.

(5) All controls shall be of such size as will permit normal adjustments to be made by a person wearing thick gloves, and in particular all tuning knobs shall not be less than 2 inches in diameter.

(6) The change-over from transmitting to receiving and *vice versa*, including automatic change of aerial connections, shall be made by means of one switch.

(7) The equipment shall be readily removable from the life boat.

(8) An electric lamp of power between 3 watts and 15 watts with a water-proof casing, shall be provided to illuminate the control panels and the aforesaid instructions.

(9) An electrical heater, connected to the ship's mains shall be provided and shall be capable of maintaining the interior of the case in which the equipment is installed at a temperature at least  $10^{\circ}$  C. above the ambient temperature. The heater shall be so mounted that it will reduce the risk of the controls or cover of the equipment becoming frozen into position but will not cause any part of the installation to become overheated.

(10) All parts other than the aerial and its terminal which are not at earth potential shall be enclosed. The aerial terminal shall be guarded against accidental contact.

(11) The equipment shall be capable of complying with the performance requirements specified in this Part of this Schedule while the lifeboat engine is running, and whether or not the battery is being charged.

2. *Aerial and Earth System.*—(1) The equipment shall include:—

(a) a single-wire aerial of high conductivity stranded or braided wire capable of being supported by the lifeboat mast without the use of top-masts at a maximum height of not less than 22 feet above the waterline; and

(b) an earth system which shall be of the same material throughout and shall consist of at least three independent bolted connections:—

(i) to the hull in the case of metal lifeboat, or

(ii) to a bare copper plate of area at least six square feet fixed to the hull below the waterline in the case of a wooden lifeboat.

(2) The aerial system shall be mechanically robust.

(3) All practicable steps shall be taken to reduce aerial losses to a minimum.

(4) All parts of the aerial which may come in contact with the occupants of the lifeboats when the equipment is in use shall be insulated.

3. *Source of Energy.*—(1) The equipment shall include one 24 volt battery composed of secondary cells and of a capacity sufficient to operate the receiver for four hours and immediately thereafter to run the transmitter under full-power marking conditions for two hours.

(2) If it is intended to operate a searchlight from the battery, the capacity thereof shall be at least 30 ampere hours in excess of that referred to in subparagraph (1) of this paragraph.

(3) The battery shall be capable of being completely recharged:—

(a) in not more than 20 hours from a dynamo working in conjunction with and throughout the normal range of speeds of the lifeboat engine if the battery is not in use at the same time; and

(b) from the ship's main source of electrical energy without being removed from the lifeboat.

(4) The battery shall not spill when tilted to an angle of  $60^{\circ}$  from its normal position in any direction.

(5) The battery shall be electrically isolated from the rest of the equipment when the transmitter and receiver are switched off.

(6) If a vibrator power unit is employed, a reserve vibrator shall be provided and so controlled by a changeover switch that it can be put into circuit immediately.

**4. Transmitter.**—(1) The equipment shall include a transmitter capable of:—

- (a) sending continuously but not simultaneously radio-telegraph signals of type A2 waves on the frequencies of 500 kc/s and 8,364 kc/s:—
  - (i) by manual operation at all speeds upto at least 25 bands without critical relay adjustment; and
  - (ii) by means of an automatic keying device complying with the requirements of paragraph 5 of this Part of the Schedule; and
- (b) maintaining without adjustment of any control, a frequency tolerance throughout every transmission of:—
  - (i) plus or minus 0.5 per cent. on a frequency of 500 kc/s; and
  - (ii) plus or minus 0.02 per cent. on a frequency of 8,364 kc/s;

notwithstanding variations of the impedance of the aerial or of any other load to which it is connected or of supply voltage within plus or minus 10 per cent; and

- (c) operation on full power within 30 seconds of being switched on.

(2) The carrier wave shall be modulated to a depth of 100 per cent. by a wave of rectangular character so that the carrier is switched on for not less than 30 per cent. and not more than 50 per cent. of a modulation cycle.

(3) The note frequency shall not be less than 500 c/s and not more than 1,200 c/s.

(4) The power of the transmitter:—

- (a) shall not be less than 15 metre-amperes on a frequency of 500 kc/s, when determined in the manner prescribed by sub-rule (3) of rule 13;
- (b) shall not be less than 50 watts on a frequency of 500 kc/s, when measured into an artificial aerial consisting of a 30 ohm resistor in series with a capacitor of every value between 350 and 450 picofarads; and
- (c) shall not be less than 15 watts on a frequency of 8,364 kc/s when measured into an artificial aerial simulating the impedance of the aerial specified in paragraph 2 of this Part of this Schedule.

(5) The transmitter shall be so designed and constructed that when it is adjusted for maximum power and the transmitting key is depressed the aerial may be disconnected or the output short circuited without damage being caused to any part of the installation.

(6) There shall be provided:—

- (a) an artificial aerial for testing the transmitter on full power, which shall include an indicator or lamp to indicate the passage of radio-frequency currents; and
- (b) an aerial ammeter, and a visual indicator to indicate the passage of radio frequency current, the failure of either of which shall not disconnect the aerial circuit.

**5. Automatic Transmission.**—(1) A device for automatic keying shall be provided as part of the radio-telegraph installation for lifeboats which when switched into circuit with the transmitter, shall be capable of automatically:—

- (a) sending the alarm signal specified in sub-paragraph (2) of this paragraph and immediately thereafter stopping and opening the keying circuit unless reset or re-wound; and
- (b) (i) sending the distress call specified in sub-paragraph (3) of this paragraph in such manner that if the device is used without attention the transmission will be repeated once every twelve minutes until the source of electrical energy is exhausted; and
- (ii) switching off the electrical energy to the transmitter in the silent interval between such transmissions and, so far as is necessary for the protection of the transmitter automatically delaying the application of electrical energy after the device has been switched on.

(2) The alarm signal shall consist of twelve four second dashes separated by one second spaces, the length of the dashes and spaces being maintained within a tolerance of plus or minus 0.2 second.

(3) The distress call shall consist of the distress signal 000— —000 repeated three times followed by a long dash, the characters of the distress signal being transmitted at a speed between 8 and 16 words inclusive per minute, and the duration of the long dash shall not be less than 20 seconds. The total length of the call shall not exceed 90 seconds.

(4) Means shall be provided to ensure that, when the distress signal is sent, the transmission being at the commencement of the signal within 40 seconds after the device for automatic keying has been switched into circuit.

(5) The mechanism for keying the distress call specified in sub-paragraph (3) of this paragraph shall be such that it can be readily adapted to send a distress call consisting of the following signals in the following order:—

- (a) the distress signal 000---000.....three times;
- (b) the morse characters for the word DE;
- (c) the morse characters for the lifeboat's call sign three times; and
- (d) a long dash having a duration of at least 20 seconds.

The duration of the distress call shall not in that case be more than 90 seconds.

6. Receiver.—(1) The equipment shall include a receiver capable of:—

- (a) receiving type A2 and type B Waves; and
- (b) being tuned over the frequency range 488 kc/s to 513 kc/s.

(2) High frequency reception, if provided, shall be capable of receiving type A1 and type A2 waves on any frequency within the frequency band 8,266 kc/s to 8,745 kc/s.

(3) The receiver shall be fitted with a manual gain control.

(4) Headphones shall be provided and shall be shrouded to exclude noise.

(5) The receiver shall comply with the requirements of sub-paragraphs (6) to (9) inclusive of this paragraph when tested in the following manner:—

- (a) an artificial aerial shall be used and shall consist of 40 ohm resistance in series with a 2 microhenry inductance and 100 picofarad capacitance;
- (b) a type A2 signal shall, unless otherwise specified, be modulated to a depth of 30 per cent. at 400 c/s; and
- (c) the standard audio-frequency output shall be one milliwatt into a resistance substantially equal to the modulus of the impedance of the telephone receivers at 1,000 c/s.

(6) (a) The selectivity preceding the final detector of the receiver shall comply with the following requirements over the frequency range 488 kc/s to 513 kc/s:—

- (i) not more than 6 decibels discrimination shall be obtained at frequencies removed from tune by 1 kc/s;
- (ii) at least 6 decibels discrimination shall be obtained at frequencies removed from tune by 4 kc/s;
- (iii) at least 30 decibels discrimination shall be obtained at frequencies removed from tune by 20 kc/s;
- (iv) at least 60 decibels discrimination shall be obtained at frequencies removed from tune by 50 kc/s;

(b) In the case of a superheterodyne receiver, the image response ratio shall be at least 20 decibels.

(7) The sensitivity of the receiver shall be such that the standard audio-frequency output is obtained with an input not exceeding the following levels:—

Frequencies	Maximum input for type A1 waves	Maximum input for type A2 waves
500 kc/s . . . . .	Does not apply	40 decibels above 1 microvolt.
8,364 kc/s (if provided) . . . . .	30 decibels above 1 microvolt.	40 decibels above 1 microvolt.



(8) The signal/noise ratio shall, with the inputs and waves respectively specified in sub-paragraph (7) of this paragraph and with the rotary converter or vibrator running, be not less than

- (a) 15 decibels on a frequency of 500 kc/s;
- (b) 25 decibels on a frequency of 8,364 kc/s (if provided).

The fidelity of the receiver shall be such that the change in level of the audio-frequency output shall be less than 8 decibels as the modulation frequency of the input signal is varied continuously from 300 c/s to 1,500 c/s the level and modulation depth of the input signal being kept constant. For this purpose the input signal may have any level and depth of modulation provided the output of the receiver does not exceed the standard audio-frequency output.

7. *Connections with Ship's Mains.*—Any connections of the equipment with the ship's main source of energy shall be so provided as not to interfere with the launching of the lifeboat.

## PART II—PORTABLE EQUIPMENT

1. *General.*—(1) The portable radiotelegraph equipment for lifeboats (in this Part of this Schedule referred to as "the equipment") shall include a hand generator, a transmitter, a receiver and all other apparatus necessary for the operation of the equipment.

(2) Simple instructions for the operation of the equipment on the frequencies specified in sub-paragraph (1) of paragraph 5 of this Part of this Schedule shall be affixed in clear and permanent form, to the equipment.

(3) The equipment shall bear a removable plate on which shall be indicated in clear and permanent form the call sign of the lifeboats in letters and morse characters.

(4) For the purposes of the Fourth Schedule to these Rules the equipment shall be deemed to be Class X equipment. The immersion test specified in sub-paragraph (7) of paragraph 3 of the said Schedule shall be applied to the equipment when packed in the manner in which it will be stored on board ship.

2. *Design and Construction.*—The equipment shall be so designed and constructed that:—

- (1) the entire equipment is contained in a single unit; provided that the mast referred to in sub-paragraph (2) of paragraph 3 of this Part of this Schedule may be attached to the single unit;
- (2) an unskilled person can erect the aerial system, and, without difficulty and by simple operation and automatic means, can transmit the radiotelegraph signals specified in sub-paragraph (4) (a) of paragraph 5 of this Part of this Schedule;
- (3) the equipment is provided with handles and is readily portable by one person
- (4) it is watertight and capable of floating in water;
- (5) it may be dropped from a height of 30 feet into water without damage;
- (6) it may be lowered into the sea or lifeboat from the boat deck;
- (7) it may be clamped to a lifeboat;
- (8) the number of manual controls are kept to the minimum required to meet the requirements of this part of this Schedule, but include:—
  - (a) send/receive switching;
  - (b) a switch for changing transmission from 500 kc/s to 8,364 kc/s and vice versa;
  - (c) a switch position so that the transmitter valve filaments can be energised continuously whilst the receiver is energised;
  - (d) a single control of receiver gain;
- (9) all manual controls are of such size as to permit normal adjustments to be made by a person wearing thick gloves; and

(10) the operation of manual controls is not impeded by, and does not impede, the and generation of electrical energy.

3. *Aerial and Earth System.*—The equipment shall include:—

- (1) a single-wire aerial consisting of not less than 30 feet of high conductivity stranded or braided wire so fitted as to be capable of being supported from the lifeboat mast without the use of top-masts at the maximum practicable height;
- (2) a collapsible stayed mast capable of being easily and quickly installed in a lifeboat and of supporting the aerial at a height of at least 16 feet above the sea when the base of the mast is resting on the bottom of any lifeboat in which it is intended to be used; and
- (3) an earth wire of high conductivity firmly connected to the equipment and loaded in such manner that the wire will sink when placed overboard.

4. *Hand Generator.*—(1) The hand generator shall be of such design and construction that when the handle of the generator is rotated at any speed within the normal range of handle speeds:—

(a) sufficient electrical energy will be generated:—

(i) to enable the transmitter to comply with the requirements of sub-paragraph (4) (e) of paragraph 5 of this Part of this Schedule; and

(ii) to enable the receiver to comply with the requirements of paragraph 6 of this Part of this schedule;

(b) the transmitter will comply with the requirements of sub-paragraph (4) (c) of paragraph 5 of this Part of this Schedule with a torque-speed at the handle of not more than 400 expressed in pounds-feet multiplied by revolutions per minute; and

(c) an indicator lamp will be lit, but will not be lit at any speed not within the normal range of handle speeds.

In this Part of this Schedule the expression "normal range of handle speeds" in relation to a generator means the range of speeds extending from the minimum speed at which the generator means enable the transmitter forming part of the same equipment to comply with the requirements of sub-paragraph (4) (e) of paragraph 5 of this Part of this Schedule to a speed at least 40 per cent. greater than that speed.

(2) The hand generator shall be of such design and construction that:—

(a) it can be operated by:—

(i) one person; and

(ii) two persons simultaneously;

(b) the handles cannot be rotated in the wrong direction.

5. *Transmitter.*—(1) The transmitter shall be capable of:—

(a) sending continuously, but not simultaneously, type A2 waves on the frequencies of 500 kc/s and 8,364 kc/s:—

(i) by manual operation at all speeds up to 16 bands; and

(ii) by automatic means of the speeds specified in sub-paragraph (4) (a) of this paragraph;

(b) maintaining over the normal range of handle speeds throughout every transmission a frequency tolerance:—

(i) of plus or minus 0.5 per cent. on a frequency of 500 kc/s;

(ii) of plus or minus 0.02 per cent. on a frequency of 8364 kc/s;

without adjustment of any control, and notwithstanding any variations of the impedance of the aerial or artificial aerial to which it is connected; and

(c) operating on full power, when the aerial system or artificial aerial has been connected and the necessary controls have been adjusted, within 30 seconds after the generation of electrical energy has commenced.

(2) The carrier wave shall be modulated to a depth of 100 per cent. by a wave of rectangular character so that the carrier wave is switched on for not less than 30 per cent. and not more than 50 per cent. of a modulation cycle.

(3) The note frequency shall not be less than 450 c/s or more than 1,350 c/s.

(4) (a) The signal to be sent by the automatic means referred to in sub-paragraph (1) (a) (i) of this paragraph:—

(i) when the transmission is on a frequency of 500 kc/s shall consist of the alarm signal of twelve four-second dashes separated by one-second spaces, followed by the distress signal.....repeated three times, and a long dash; and

(ii) when the transmission is on a frequency of 8,364 kc/s shall include the distress signal .repeated three times followed by a long dash of not less than 30 seconds duration.

(b) Over the normal range of hadle speeds:—

(i) the speed of the automatic transmission of the distress signal shall not be less than 8 and not more than 15 words a minute;

(ii) the tolerance in the timing of the dashes of the alarm signal shall not be more than plus or minus 0.2 seconds.

(c) The automatic transmission shall cease and open the keying circuit after one complete transmission unless the mechanism is re-set or re-wound.

(d) Means shall be provided:—

(i) to ensure that the transmission begins at the commencement of the signal;

(ii) to indicate to the operator that the mechanism should be re-set or re-wound.

(e) The mean power developed by the transmitter in the load during a marking period, shall:—

(i) on a frequency of 500 kc/s be not less than  $(3.8 \log I.C.) - 5.5$  watts, C. being the capacitance of the artificial aerial in picofarads, when measured, with an artificial aerial consisting of a 15 ohm resistor in series with a capacitor having any value between the minimum capacitance of the aerial referred to in sub-paragraph (1) of paragraph 3 of this Part of this Schedule and 150 picofarads, and not less than 3.5 watts when measured with an artificial aerial consisting of a 30 ohm resistor in series with a capacitor having any value between 350 and 450 picofarads;

(ii) on a frequency of 8,364 kc/s be not less than 3 watts when measured with an artificial aerial consisting of a 40 ohm resistor in series with any inductive or capacitated reactance in the range plus or minus 60 ohms—

(f) The aerial circuit shall include:—

(i) a tuning control suitable for use with all types of aerial provided; and

(ii) a tuning indicator, the failure of which shall not disconnect the aerial circuit.

(g) There shall be provided:—

(i) an artificial aerial within the equipment suitable for testing the transmitter on full power;

(ii) means for testing the facilities for automatic transmission without the generation of radio-frequency energy.

(5) The transmitter shall be so designed and constructed that when it is transmitting and adjusted for maximum power the aerial may be disconnected or the output short-circuited in either case without damage caused to any part of the equipment.

**6. Receiver.**—(1) The receiver shall be a fixed tune receiver which shall be capable of receiving type A2 waves over the frequency band 490 to 510 kc/s when used with headphones.

(2) Headphones which are shrouded to exclude external noises shall be provided and shall be permanently attached to the receiver

(3) The receiver shall comply with the requirements of sub-paragraph (4) of this paragraph when tested in the following manner:—

(a) artificial aeriels shall be used and shall consist of either:—

(i) a 15 ohm resistor in series with a capacitor having any value between the minimum capacitance of the aerial referred to in sub-paragraph (1) of paragraph 3 of this Part of this Schedule and 150 picofarads, or

- (ii) a 30 ohm resistor in series with a capacitor of any value within the range 350 to 450 picofarads;
- (b) the signals used shall be type A2 signals modulated to a depth of 30 per cent. at 400 c/s.
- (4) Over the normal range of handle speeds:—
- (a) the standard audio-frequency output of the receiver into a resistance substantially equal to the modulus of the impedance of the telephone receivers at 1,000 c/s shall be one milliwatt;
- (b) the selectivity preceding the final detector of the receiver shall comply with the following table:—

Frequency	Requirement
490 to 510 kc/s	Response to be uniform to within 6 decibels over the range.
Below 460 kc/s	} At least 40 desibels discrimination relative to the response at 500 kc/s to be obtained at all frequencies.
Above 540 kc/s	

- (c) the audio-frequency response of the receiver shall be uniform to within 6 decibels over the range of modulation frequencies 400 to 1,400 c/s and shall substantially fall for frequencies outside this range;
- (d) the standard output specified in sub-paragraph (a) shall be obtained with a test signal input not exceeding 40 decibels above one microvolt on a frequency of 500 kc/s;
- (e) with the test signal specified in sub-paragraph (d) the signal/noise ratio shall be at least 15 decibels.

#### SIXTH SCHEDULE

(See rule 15)

*Tools, Measuring Instruments, Spare Parts, etc.*

#### PART I—TOOLS

- 1 Contact burnisher;
  - 1 6 in. smooth file;
  - 1 jointing knife;
  - 1 pair 7 in. wireman's insulated pliers;
  - 1 pair 6 in. long nose pliers with side cutters;
  - 1 insulated screwdriver, not less than 8 in. in length, with  $\frac{1}{4}$  in. blade;
  - 1 insulated grub screwdriver with  $\frac{1}{8}$  in. blade;
  - 1 watch screwdriver with  $\frac{1}{16}$  in. blade;
  - 1 set of spanners, sizes 0, 2, 4, and 6 B. A.;
  - 1 spanner adjustable to 1 in. nuts;
  - \*1  $\frac{1}{4}$  in. hand drill;
  - \*1 set of high-speed twist drills, sizes  $\frac{3}{16}$  in., 26, 34 and 44;
  - 1 clamp vice;
  - 1 electric soldering iron to suit ship's voltage with a power consumption of not less than 40 watts or more than 70 watts;
  - 1 dusting brush;
  - 1  $\frac{1}{2}$  lb. ball-pane hammer;
  - 1 tool box or compartment for containing the foregoing tools and capable of being locked.
- \*NOTE.—These items need not be provided in ships other than those engaged on international voyages.

## PART II—MEASURING INSTRUMENTS

- 1 hydrometer;
- 1 dipping fahrenheit thermometer;

An ammeter capable of measuring direct current from 1 milliampere to 500 milliamperes; a voltmeter capable of measuring direct current voltage from 75 millivolts to 500 volts and alternating current voltage from 150 millivolts to 500 volts; and an ohm-meter capable of measuring resistance from 10 ohms and 20,000 ohms; provided that a measuring instrument in which the requirements for an ammeter, a voltmeter, and an ohm-meter specified above are combined may be substituted for the said instruments.

## PART III—SPARE PARTS AND SPARE EQUIPMENT

- 1 set of brushes for each machine installed;
  - 2 cartridges for each cartridge fuse in use;
  - 1 set of key contacts for each type of key in use;
  - 1 main aerial made up (wire only);
  - 50 per cent. of the number of insulators in use (excluding lead-in insulators);
  - 100 per cent. of the number of shackles and thimbles in use;
  - 12 bulldog grips to suit the aerial wire;
  - 1 set of telephones and leads (with plugs if used) for each type of telephones and leads in use;
  - 1 valve for each two of the first six of each type of valve in use and then 1 valve for each additional 3 valves or part of 3 valves of that type in use;
  - 3 vibrators for each type of vibrator in use;
  - 1 indicator lamp for each indicator lamp in use;
  - 6 mic discs for spark gap
  - 1 pressure disc
  - 1 emergency lamp;
  - 1 charging mat if a mat-type charging unit is in use;
  - 2 charging lamps for each type of charging lamp in use;
  - 1 rectifier if a rectifier-type charging unit is in use.
- } If used in the radio telegraph installation.

## PART IV—MISCELLANEOUS ITEMS

- 4 ozs. petroleum jelly;
- 3 sheets glass paper;
- 8 ozs. rosin-cored solder;
- 4 ozs. insulating tape;
- $\frac{1}{2}$  pint lubricating oil;
- $\frac{1}{2}$  lb. grease suitable for machine in use;
- 4 ozs. assorted fuse wire, 1 ampere, 5 ampere and 15 ampere;
- 1 length of aerial wire equal to the length of the emergency aerial plus 10 feet (uncut);
- 4 ozs. copper binding wire;
- 6 yards flexible wire (5 amperes) for adjustable connections;
- 4 ozs. carbon tetrachloride.

## THE SEVENTH SCHEDULE

(See Rule 15)

*Auto-Alarm*

1. *General.*—(1) The auto-alarm shall:—

(a) include a receiver, a selector, a test signal generator and an audible alarm system;

(b) be capable of giving audible warning of the receipt of an alarm signal consisting of a series of 12 consecutive dashes, each with a duration of 4 seconds and separated by intervals of one second in each case subject to the tolerance specified in paragraph 3 of this Schedule;

(c) be capable of being rapidly connected with the main aerial referred to in rule 12 of these rules or to an equally efficient aerial;

(d) comply with the requirements of this Schedule notwithstanding variations of the supply voltage of:—

(i) plus 5 per cent. or minus 10 per cent. if the equipment is operated from the emergency source of electrical energy required by sub-rule (2) of rule 14 or from batteries; or

(ii) plus or minus 10 per cent. if the equipment is operated from the main source of electrical energy required by sub-rule (1) of the said rule.

(2) The receiver, selector and test signal generator shall be installed in a radio-telegraph room.

(3) The auto-alarm shall be provided with a switch or system of switches by which it may be connected to the ship's main aerial or to an equally efficient aerial.

(4) The auto-alarm shall include a manual re-setting device to enable the selector to be re-set after the audible alarm system has been actuated.

2. *Receiver.*—(1) The receiver forming part of the auto-alarm shall be capable of receiving type A2 waves and type B waves in each case on all note frequencies between 400 c/s and 1,400 c/s and on all carrier waves of a frequency between 492 kc/s to 508 kc/s.

(2) All tuning controls and gain controls which affect the operation of the receiver as part of the auto-alarm shall be pre-set and shall not be capable of operation from the outside of the auto-alarm.

(3) The receiver shall comply with the requirements of sub-paragraph (4) to (7) inclusive of this paragraph when tested in the following manner, except where another method of testing is specified in the said sub-paragraphs:—

(a) an artificial aerial shall be used for the test and shall consist of a 10 ohm resistor in series with a capacitor having any value between 300 and 750 picofarads.

(b) type A2 signals used in the test shall be modulated to a depth of 70 per cent. and shall have a note frequency of 400 c/s.

(4) The selectivity of the receiver shall be such that:—

(a) the radio-frequency response is uniform to within 3 decibels in a frequency range 492 to 508 kc/s;

(b) the total variation of audio-frequency response is not more than 3 decibels in the case of note frequencies in the range 400 to 1,400 c/s;

(c) the audio-frequency response fall rapidly in the case of note frequencies below 400 c/s and above 1,400 c/s; and

(d) the auto-alarm gives response to an alarm signal of a frequency of 500 kc/s and an input level of 40 decibels above one microvolt, in the presence of another signal having the following characteristics;

Type of wave	Modulation frequency	Depth of modulation	Carrier frequency	Input level (decibels above one microvolt)
Continuously modulated carrier wave.	All audio-frequencies in the range 50 c/s to 1,400 c/s.	70 per cent.	Below 470 kc/s and above 530 kc/s below 450 kc/s and above 550 kc/s	80   120

(5) (a) The sensitivity of the receiver shall for the purposes of this paragraph, be taken to be the minimum input level of the test alarm signal injected at a frequency of 500 kc/s which will operate the selector. The sensitivity of the receiver shall be such that the selector will operate by the injection of an alarm signal from the test signal forming part of the auto-alarm.

(b) The receiver shall be provided with an automatic gain control which shall:

- (i) during periods when the selector is continuously in operation, steadily reduce the sensitivity of the receiver at a rate within the range 7.5 to 15 decibels per minute in the case of a range of sensitivity of 40 to 80 decibels above one microvolt notwithstanding that the input level of an injected signal is at any level above the minimum necessary to operate the selector; and
- (ii) during period when the selector is not continuously in operation, steadily increase the sensitivity of the receiver to a maximum level of between 35 and 40 decibels above one microvolt at a rate of increase within the range of 30 to 60 decibels per minute in the case of a range of sensitivity of 40 to 80 decibels above one microvolt, notwithstanding that the input level of an injected signal is at any level below the level corresponding to the threshold of selector release.

(6) The automatic gain control when morse interference is simulated by continuous keying of a test signal of a frequency of 500 kc/s and an input level of 100 decibels above one microvolt with a mark-to-space ratio of 19 to 1, and variation of frequency of interruption is obtained by varying the speed of transmission, shall be such that:—

- (a) when such test signal produces three interruptions per second, the sensitivity of the receiver is not reduced below that necessary for the reception of a signal of an input level of 40 decibels above one microvolt; and
- (b) when the speed of such test signal is arranged so that there are three interruptions per period of 2 seconds the sensitivity of the receiver is so reduced after operating for a period of 15 minutes that a signal of at least 70 decibels above one microvolt is required to operate the selector.

(7) If, in addition to the automatic gain control, a pre-set manual control of receiver gain is provided the range of sensitivity variations provided by that control shall be not more than 10 decibels.

(8) The receiver shall be such that the auto-alarm will respond to a test alarm signal transmitted on any frequency in the range 492 kc/s to 508 kc/s and at an input level of 50 decibels above one microvolt in the presence of an interfering signal with the following characteristics:—

Type of Signal	Depth of modulation	Modulation frequency	Input level	Speed of transmission
Type A 2	70 per cent.	400 c/s-1400	c/s 120 decibels above one microvolt.	15—40 words per minute

(9) The receiver shall be such that it will not operate the selector upon the simultaneous injection of any two continuous carrier waves, of which the frequency difference or sum falls within the range 492 kc/s to 508 kc/s, being waves with the following characteristics:—

Frequency	Input level	Modulation
Outside the range 450 kc/s to 550 kc/s.	120 decibels above one microvolt.	One unmodulated and the other modulated to a depth of 70 per cent at any audio-frequency in the range 400 c/s to 1,400 c/s.

(10) (a) The receiver shall not in normal service produce a field exceeding 0.1 microvolt per metre when measured at a distance of one mile from the receiver, unless the test signal generator is in operation.

(b) The receiver shall be deemed to comply with the requirements of sub-paragraph (a) of this paragraph if, when:—

- (i) the receiver is placed centrally in a screened earthed enclosure of dimensions at least 6 feet cube;
- (ii) the earth terminal of the receiver is connected to the inside of the screen;
- (iii) the aerial terminal of the receiver is connected through an unscreened search coil situated within the said enclosure and of dimensions one foot square and an unscreened lead to a resistive measuring instrument mounted outside the enclosure and having its other terminal earthed; and
- (iv) the receiver is energised, the power measured by the measuring instrument does not exceed  $4 \times 10$  i.e. watts; whatever the resistance of the measuring instrument or the adjustment of the receiver and notwithstanding that the search coil is short circuited or moved in any way without approaching within 6 inches of the receiver case.

**3. Selector.**—(1) The selector in conjunction with the receiver shall be capable of:—

(a) accepting:—

- (i) dashes of a duration within the tolerances 3.5 to 6.0 seconds;
- (ii) spaces between dashes, being spaces of a duration within the tolerances 0.01 to 1.5 seconds; and

(b) rejecting:—

- (i) dashes of a duration of less than 3.4 seconds;
- (ii) dashes of a duration of more than 6.2 seconds; and
- (iii) spaces between dashes, being spaces of a duration of more than 1.6 seconds.

(2). The selector, after accepting three or four consecutive dashes of the alarm signal, shall actuate the audible alarm system.

(3) Any timing controls provided as part of the selector shall be pre-set and shall not be capable of being operated from the outside of the equipment.

**4. Test signal generator.**—(1) The test signal generator shall be capable of:—

(a) generating, for purposes, of test a signal with the following characteristics:—

- (i) Frequency—500 kc/s;
- (ii) Type of wave—A2;
- (iii) Depth of modulation—within the range of 70 to 100 per cent;
- (iv) Modulation frequency—within the range of 400 to 1,400 c/s;
- (v) Input level equivalent to a voltage modulated to a depth of 70 per cent within the range 37 to 43 decibels above one microvolt in series with the artificial aerial; and

(b) injecting into the receiver the alarm signal specified in paragraph 1(b) of this Schedule within the tolerances specified in sub-paragraph (1) (a) of paragraph 3 of this Schedule and the characteristics specified in the foregoing provisions of this paragraph, both by means of:—

- (i) a manual key of a non-locking type; and
- (ii) the automatic keying device specified in Part V of the Second Schedule to these Rules.

(2) The methods of injection shall be such that the test alarm will not operate the audible alarm system when the aerial is disconnected.

(3) The test signal generator shall be so designed and constructed that the input level of the signal specified in sub-paragraph (1)(a) of this paragraph can be increased by approximately 20 decibels by means of a non-locking switch.

**5. Audible alarm system.**—(1) The audible alarm system shall consist of three alarm bells installed respectively in a radiotelegraph room, on the bridge and in the sleeping room of a radio officer. The bells shall be operated from the source of electrical energy required by sub-rule (2) of rule 14 by means of a



power circuit taken from an unfused circuit, and so fused that the efficiency of the audible alarm system will not be affected by the rupture of any fuse other than a fuse forming part of that system. The power circuit shall be controlled by a locking switch situated on or near to the receiver forming part of the auto-alarm, and clearly and permanently marked to indicate its purpose.

(2) Subject to the provisions of sub-paragraph (3) of this paragraph, the alarm bells shall, whenever the auto-alarm is in operation as such, give an alarm:—

(a) when actuated by the selector; and

(b) within 15 seconds after any failure for 9 seconds (subject to tolerance of plus or minus 6 seconds) of:—

(i) the direct-current voltage feeding the anode of any valve of the receiver forming part of the auto-alarm, if the receiver is not provided with a vibrator;

(ii) any vibrator forming part of the receiver;

(iii) a circuit of a filament of any directly-heated valve forming part of the receiver if it is operated from the main source of electrical energy required by sub-rule (1) of rule 14; and

(iv) any continuously rotating mechanism forming part of a selector operated from the said main source of electrical energy;

(c) within 15 seconds after any failure of:—

(i) a circuit of a filament of a directly-heated valve forming part of the receiver if it is operated from batteries;

(ii) any continuously rotating mechanism forming part of a selector operated from batteries.

(3) A device shall be provided which will enable the bells situated on the bridge to be disconnected from the aforesaid power circuit. The device may include means for so disconnecting the bell situated in the radio officer's sleeping room. The device shall be non-locking and shall not be capable of disconnecting the bell in the radiotelegraph room. The device shall be clearly and permanently marked to indicate its purpose.

6. **Field test.**—If the auto-alarm is in operation for a period of 28 days in connection with an aerial having an effective height of not less than 10 metres and situated at any point within 3 miles of the coast of India, the auto-alarm shall not be actuated during that period by signals other than:—

(a) signals locally generated to test the auto-alarm; and

(b) signals within the tolerance specified in sub-paragraph (1)(a) of paragraph 3 of this Schedule.

#### EIGHTH SCHEDULE

(See Rules 19 and 28)

#### TABLE OF WATCH HOURS

Zones	Western Limits	Eastern Limits	Hours of Watch Greenwich Mean Time			
			16 hrs.	8 hrs.		
(1)	(2)	(3)	(4)	(5)		
A.—Eastern Ocean, Mediterranean, Sca, Baltic.	Atlantic North	Meridian of 30° W, Coast of Greenland.	Meridian of 30°W, to the South of the Coast of Africa, Eastern Limits of the Mediterranean, of the Black Sea, and of the Baltic, 30°E, to the North of Norway.	From 0h to 8h	From 6h to 10h	From 12h to 14h
				16h to 20h	18h to 22h	18h to 22h

(1)	(2)	(3)	(4)	(5)
			Fr	m To
B.—Western Ocean, Arctic Sea.	Indian Eastern	Eastern Limit of Zone A.	Meridian of 80°E, West Coast of Ceylon to Adam's Bridge, thence westward round the coast of India.	oh 2h 4h 6h 4h 10h 9h 10h 12h 14h 12h 14h 16h 18h 16h 18h 20h 24h
C.—Eastern Ocean, China Sea, Western Pacific Ocean.	Indian Eastern	Eastern Limit of Zone B.	Meridian of 160°E	oh 2h 4h 6h 8h 10h 8h 10h 12h 14h 12h 14h 16h 22h
D.—Central Ocean.	Pacific	Eastern Limit of Zone C.	Meridian of 140° W	oh 2h 4h 6h 4h 6h 4h 6h 8h 10h 8h 10h 12h 18h 20h 22h 20h 24h
E.—Eastern Ocean.	Pacific	Eastern Limit of Zone D.	Meridian of 90°W as far as the Coast of Central America, then the West Coast of Central America and North America.	oh 2h 4h 6h 4h 6h 4h 6h 8h 14h 16h 18h 16h 22h 20h 22h
F.—Western Ocean and Mexico.	Atlantic Gulf of	Meridian of 90° W, Gulf of Mexico, East Coast of North America.	Meridian of 30°W coast of Greenland.	oh 2h 4h 6h 4h 10h 12h 14h 12h 18h 16h 18h 20h 22h 20h 22h

## NINTH SCHEDULE

(See Rule 22)

## Form of Radiotelegraph Log-Book

## Radiotelegraph Log

## PART I

Name of Ship	Official Number and International Call Sign	Port of Registry	Gross Tonnage
Name of Company operating the Radio Service.....			
Port at which and date when voyage commenced	Nature of the voyage or employment	Port at which and date when voyage terminated	
Date..... Port.....		Date..... Port.....	

Delivered to the Superintendent of the Mercantile Marine Office at the Port of ..... on the ..... day of ..... 19..... together with Radiotelegraph Log Part II, serial numbers ..... to ..... countersigned.

..... Master.

..... Superintendent ..... Address.

## SECTION A—PARTICULARS OF RADIO STAFF

Name	Home Address	Certificate Number and Class
------	--------------	------------------------------

## SECTION B—PARTICULARS OF BATTERIES ON BOARD

Battery Number	Number of Cells	Type	Date supplied	Voltage and ampere-hour capacity	Purposes for which used
----------------	-----------------	------	---------------	----------------------------------	-------------------------

## SECTION C—DAILY EXAMINATION OF BATTERIES

Date	Battery Number	Voltage off load	Voltage on load	Remarks
------	----------------	------------------	-----------------	---------

## SECTION D—MONTHLY REPORT OF BATTERIES

Date	Battery Number and Cell Number	Specific Gravity as measured		Remarks	Date	Battery Number and Cell Number	Specific Gravity as measured		Remarks
		Before Charge	After Charge				Before Charge	After Charge	

*Radiotelegraph Log*

## PART II

Name of Ship	Official Number and International Call Sign	Port of Registry	Gross Tonnage
--------------	---	------------------	---------------

Serial Number.....from.....to.....

Name of Company operating the Radio Service.....

S.S.....

M.V.

*Diary of the Radiotelegraph Service.*

Date and Time (G.M.T.)	Station From	Station To	Full Details of Calls Signals and Distress Working as prescribed by Rule 20	Frequency
---------------------------	-----------------	---------------	--	-----------

## THE TENTH SCHEDULE

(See rule 30)

*Form of Radiotelephone Log Book  
Radiotelephone Log.*

Name of Ship	Official Number	Port of Registry	Gross Tonnage
--------------	-----------------	------------------	---------------

Name of Company operating the Radio Service.....

Period covered by Log—From.....To.....

Delivered to the Superintendent of the Mercantile Marine Office at the Port of.....

.....on the .....day/of.....19.....

Countersigned.....Master

.....Superintendent.....Address.

## SECTION A—PARTICULARS OF RADIOTELEPHONE OPERATIONS

Name	Home Address	Certificate Number and Class
------	--------------	------------------------------

S. S. ....

M. V. ....

## SECTION B—DIARY OF THE RADIOTELEPHONE SERVICE

Date and time (G.M.T.)	Station From	Station To	Frequency Used	Record of working as prescribed by rule 30
---------------------------	-----------------	---------------	-------------------	---

## THE ELEVENTH SCHEDULE

(See rule 34)

A

Office No.

INDIAN MERCHANT SHIPPING ACT, 1923 (XXI OF 1923)——  
MERCHANT SHIPPING (WIRELESS TELEGRAPHY) ACT, 1919.

Issued by the Government of India

## RADIO INSPECTOR'S NOTICE

ON

## RADIO INSTALLATIONS

(REGULATIONS NOT COMPLIED WITH)

## RADIO INSPECTOR'S NOTICE TO OWNERS

\*The Radio Inspector should at the same time be careful to send to the Chief Officer of Customs, a copy of this notice.

Name of Ship	Builder's Name and Number	Port of Registry or intended Port of Registry	Official Number (if any)
--------------	---------------------------	---	--------------------------

Sir,

An inspection of the Radio Installation of the abovenamed vessel having been made this day I have to inform you that before the necessary certificate can be issued the requirements named on the other side hereof must be complied with.

On hearing from you that the alterations or additions required have been made, the vessel will again be visited with a view to the inspection being completed.

\*The Chief Officer of Customs at ..... has received notice not to allow the vessel to proceed to sea.

Date.....

.....this.....day of .....19 ..

.....Radio Inspector and Principal Officer, Mercantile Marine Department

.....District.

## OWNER's Report to Radio Inspector

When the requirements notified on the other side hereof have been carried out, the Owner or his Agent or the Master should fill in the following form and send it to the Radio Inspector. To prevent delay it is necessary that the Radio Inspector should have at least 48 hours notice of the time when the vessel will again be ready for inspection.

Sir,

The requirements named on the other side hereof have been effectually fulfilled. The vessel will be again ready for inspection on the date and the place named below.

Date for inspection

Place at which the ship will be lying

TO THE PRINCIPAL OFFICER,  
MERCANTILE MARINE  
DEPARTMENT  
AT.....

Dated at .....  
this ..... day of ..... 19  
.....

Owner, Agent or Master

(Reverse)

Name of Ship ..... Official Number .....  
..... Port of Registry .....  
Builder's Name and Number ..... Date .....

#### REQUIREMENTS

[No. 76MA(16)52.]

S. K. GHOSH, Dy. Secy.

(Transport Wing)

New Delhi, the 23rd May, 1956

#### PORTS

**S.R.O. 1266.**—In exercise of the powers conferred by sub-section (3) of section 3 of the Indian Ports Act, 1908 (XV of 1908), the Central Government hereby authorises Shri R. Sondhi, a temporary pilot of the Bombay Port Trust, to pilot vessels in the Port of Bombay.

[No. 8-A.PI(38)/56.]

K. BALAKRISHNAN, Under Secy.

#### MINISTRY OF NATURAL RESOURCES AND SCIENTIFIC RESEARCH

New Delhi, the 23rd May, 1956

**S.R.O. 1267.**—In exercise of the powers conferred by section 5 of the Mines and Minerals (Regulation and Development) Act, 1948 (LIII of 1948), the Central Government hereby makes the following amendment in the Mineral Concession Rules, 1949, namely:—

Rule 10 of the said Rules shall be re-numbered as sub-rule (1) of that rule and to the sub-rule as so renumbered, the following sub-rule shall be added, namely:—

“(2). The provisions of rule 6 shall, so far as may be, apply to the renewal of a certificate of approval.”

[No. MII-159(13)/54.]

*New Delhi, the 28th May, 1956*

**S.R.O. 1268.**—In exercise of the powers conferred by section 5 of the Mines and Minerals (Regulation and Development) Act, 1948 (LIII of 1948), the Central Government hereby makes the following further amendment in the Mineral Concession Rules, 1949, namely:—

In the said Rules, for Schedule IV, the following Schedule shall be substituted, namely:—

**"SCHEDULE IV**

**SPECIFIED MINERALS**

(See rules 13, 26 and 45)

Coal and lignite; gypsum; apatite and phosphatic ores, sulphur and its ores; vanadium ores; tungsten ores; pitchblende and other uranium ores; columbite, samarskite and other minerals of the "rare earths" group; uraniferous allanite; monazite and other thorium minerals; uranium bearing tailings left over from ores after extraction of copper and gold; ilmenite and other titanium ores; zircon; Rutile and beryl; iron ore, manganese ore and chrome ore; lead, zinc, copper, and nickel ores; tin and molybdenum; gold, silver, platinum and other precious metals and their ores; and precious stones."

[No. MII-159(7)/56.]

R. N. VASUDEVA, Dy. Secy.

**MINISTRY OF COMMUNICATIONS**

**(Posts and Telegraphs)**

*New Delhi, the 22nd May, 1956*

**S.R.O. 1269.**—In exercise of the powers conferred by section 7 of the Indian Telegraph Act, 1885 (XIII of 1885), the Central Government hereby makes the following further amendment in the Indian Telegraph rules, 1951 namely:—

In rule 430 in item II of the table below sub-rule (1) of the said Rules, for the entries under the column headed "Exchanges" the following entries shall be substituted:—

Agra.	Dinapore.
Ajmer.	Ernakulam.
Akola.	Gauhati.
Aligarh.	Gaya.
Ambala Cantt.	Gorakhpur.
Ambala City.	Gulzarbagh.
Amroati.	Guntur.
Asansol.	Gwalior.
Banaras.	Hyderabad.
Bangalore City.	Hubli.
II. Bangalore Civil.	Jabalpur.
Bareilly.	Jaipur.
Baroda.	Jalpaiguri.
Belgaum.	Jamnagar.
Bhavnagar.	Jullundur.
Bhagalpur.	Kolhapur.
Bhopal.	Kurnool.
Broach.	Lucknow.
Calicut.	Ludhiana.
Chandigarh.	Madurai.
Chheharta (Amritsar).	Mangalore.
Cochin.	Mattancherri.
Coimbatore.	Meerut.
Coonoor.	Muzaffarnagar.
Cuttack.	Muzaffarpur.
Darjeeling.	Mysore.
Dehra Dun.	Nagrispur.
Delhi—Avenue.	Nasik City.
Delhi Lothian (Manual).	Nasik Road.
Delhi Old Secretariat.	Ootacamund.
Delhi Shahjahan Road.	Patiala.
Devlali.	Patna (including Patna Secretariat)

Raipur.  
Rajkot.  
Ranchi.  
Ranigunj.  
Salem.  
Secundrabad.  
Shillong.  
Sholapur.  
Sinidih.

Surat.  
Takdah.  
Tiruchirapalli.  
Trichur.  
Trimulgherry.  
Vijayawada.  
Vishakhapatnam.  
Willingdon Island.

[No. R.3-82/55.]

H. C. SHARMA, Under Secy.

**MINISTRY OF IRRIGATION AND POWER**  
(Central Electricity Board)

New Delhi, the 22nd May, 1956

**S.R.O. 1270.**—Shri N. S. Vasant is appointed to be Secretary to the Central Electricity Board *vice* Shri K. L. Saxena.

[No. EL-II-357(1)/56.]

R. R. BAHL, Chairman,  
Central Electricity Board.

**MINISTRY OF WORKS, HOUSING & SUPPLY**

New Delhi, the 23rd May, 1956

**S.R.O. 1271.**—In pursuance of sub-rule (1) of Rule 48 of Order XXI of the First Schedule of the Code of Civil Procedure, 1908 (Act V of 1908), the Central Government hereby appoints the officers specified in Column I of the table below as officers to whom notice of orders attaching the salaries and allowances of the officers specified in the corresponding entries in column 2 of the said table shall be sent.

TABLE

<i>Officers to whom notice should be sent.</i>	<i>Officers whose salaries and allowances are attached.</i>
1	2
A.G.C.R., New Delhi.	Gazetted Officers in the Central Public Works Department.
Deputy Director Administration (I), Central Office of the Central Public Works De- partment, New Delhi.	Non-gazetted Officers in the Cen- tral Public Works Depart- ment.

[No. 3455-E/56.]

P. K. SEN, Under Secy.

New Delhi, the 28th May, 1956

**S.R.O. 1272.**—The following draft of certain further amendments to the Indian Boiler Regulations, 1950, which the Central Boilers Board proposes to make in exercise of the power conferred by section 28 of the Indian Boilers Act, 1923 (V of 1923), is published as required by sub-section (1) of section 31 of the said Act, for the information of all persons likely to be affected thereby; and notice is hereby given that the said draft will be taken into consideration on or after the 4th October 1956.

Any objection or suggestion which may be received from any person with respect to the said draft before the date so specified will be considered by the Central Boilers Board. Such objections or suggestions should be addressed to the Secretary, Central Boilers Board, Ministry of Works, Housing and Supply, North Block, New Delhi



*Draft Amendments*

In the said Regulations—

(A) For Clause (e) of regulation 4, the following clause shall be substituted, namely:—

“(e) Certificate for steam pipes.—A certificate of manufacture and test in Form IIIA signed by the maker or a responsible representative of the maker of the steam pipes containing particulars and results of tests of materials used in the manufacture and the make and the hydraulic test of all steam pipes supplied.”

(B) For Form III, the following Form shall be substituted, namely:—

“FORM III

WORKS ADDRESS

CONSTRUCTOR'S CERTIFICATE OF MANUFACTURE  
AND TEST

[Regulation 4(c) (ii)]

1 Description	Constructor's Name and address ..... Manufactured for/Stock purposes ..... ..... Contract No. .... Type of boiler ..... Length overall. .... Diameter inside Largest belt ..... Design pressure.....lbs./sq. in. Intended working pressure.....lbs./sq.in. Shop Number of boiler ..... Year of Manufacture..... Total heating surface.....sq.ft. Total evaporation.....lbs./hr. (Maximum continuous rating) Final temperature of steam (Design) .....°F Grate area .....sq. ft. Brief description of boiler ..... ..... .....
2 Parts Manufactured at the constructor's works.	Name of part (s) ..... Description ..... Leading dimensions ..... Manufactured by ..... Identification marks ..... Part(s) manufactured, inspected at all stages of construction by..... .....(Inspecting Authority). Certificates furnished (Constructor's steel Makers' and Inspecting Authority's etc). ..... Part(s) hydraulically tested and internally Inspected after test by..... .....
3 Parts manufactured outside the Constructors works.	Name of part(s) ..... Description ..... Leading dimensions ..... Manufactured by ..... Identification marks ..... Part(s) manufactured, inspected at all stages of construction by..... .....(Inspecting Authority). Certificates furnished (Constructor's Steel Markers' Inspecting Authority's etc.).. ..... Part(s) hydraulically tested and internally inspected after test by..... NOTE: Similar information is to be furnished for each part manufactured outside the Constructor's Works.

Construction and 4  
workmanship

*Shell seams.*—The longitudinal seams are welded/riveted and have..... rows of rivets in inside strap and ..... rows of rivets in outside strap. Rivet holes are..... inch diameter and number..... per pitch of ..... inches.

Butt straps cut from plates and bent to required curvature in ..... The circumferential seams joining rings of shell are ..... jointed and single /double riveted/ welded.

Rivet holes are..... inches diameter and number..... per pitch of ..... inches. The shell and seams are ..... jointed and single/double riveted/welded. Rivet holes are ..... inches diameter and number..... per pitch of ..... inches.

Details of seams as in drawing No.....

*Furnace seams.*—The longitudinal seams are welded/riveted. The cross seams joining rings are of ..... type ..... riveted/welded.

*Workmanship.*—All rivet holes in cylindrical shell and furnace flues drilled in place after plates were bent; a plates afterwards taken apart, burrs removed and rough edges of holes cleaned before riveting. Riveting wherever practicable done by.... machine. All fire-worked plates, effectively annealed after completion of operations. Welding of parts of boiler, has been done by ..... process.

All welds were effectively stress relieved.

No part of the boiler including mouthpieces and stand blocks, is made of cast iron or malleable cast iron.

FUSION WELDED DRUMS OF WATER-  
TUBE BOILERS:—

The construction is in accordance with Chapter V of the Indian Boiler Regulations.

Number of longitudinal seams in each ring.....

Number of circumferential seams.....

Details of repairs, if any, carried out to seams during construction.....

Details of heat treatment.....

Fusion welded Electrode Boilers: The construction is in accordance with Chapter X of Indian Boiler Regulations.

Number of longitudinal seams in shell ....

Number of circumferential seams.....

Details of repairs, if any, carried out to seams during construction.....

Details of heat treatment.....

SHELL TYPE BOILERS OF WELD-  
ED CONSTRUCTION:—

The construction is in accordance with Chapter XII of Indian Boiler Regulations.

Number of longitudinal seams in shell....

---

Number of longitudinal seams in furnace . .  
Number of circumferential seams in shell . .  
Number of circumferential seam in furnace  
Details of repairs, if any, carried out to seams  
during construction . . . . .  
Details of heat treatment . . . . .

---

	Boiler parts and fittings	Material	Smelter	Make	Inspecting officer	Remark
Material Manufacture	Plates					
	Plates					
	Rivet bars					
	Stay bars					
	Angles					
	Bofts					
	Tubes					
	Tubes					
	Tubes					
	Girders					
	Boxes					
	Headers					
	Headers					
	Manhole frames					
	Manhole doors					
	Manhole compn. ring					
	Sighthole doors					
	Stand blocks					
	Stand pipes					
	Stop Valve chests					
	Safety Valve chests					
	Food Valve chests					
	Blow down valve					
	Blow down elbow pipe					
	Water gauge mountings.					

NOTE.—Under “Material” enter against appropriate items : “steel, Simens Martin, Open Hearth acid (or basic) process”, “Wrought Iron Brand, . . . . .” “Cast Steel, Process, . . . . .” etc. etc. and under “Remarks” a brief explanation of process of manufacture where necessary, *e.g.*, “Solid drawn”, “Lap welded”, “Solid Pressed”, Tested by Makers, . . . lbs. per sq. inch etc.

*Thickness Of Plates Etc. and Tensile Test Limits*

Part of Boiler			Thickness of plates in 32nd or diameter in inches	Tensile strength limits to tons	Elongation limits to%	Gauge length inches	Brand No. on plate
1	2		3	4	5	6	7
Cylindrical Shell Plates	Shell						
	Butt straps						
	Steam & water drums						
	Wrapper plates (1)						
	Tube plate (1)						
	Wrapper plate (2)						
	Tube plate (2)						
	Wrapper plate (3)						
	Tube plate (3)						
Barrel							
Fire Box casing crown							
Dome							
Mud or bottom drum (1)							
Mud or bottom drum (2)							
Mud or bottom drum (3)							
Shell and Front End shell							
plates and Drum heads	Do.	steam and					
		water drum	(1)				
	Do.	Do.	(2)				
	Do.	Do.	(3)				
	Do.	Mud drum	(1)				
	Do.	" "	(2)				
	Do.	" "	(3)				

1	2	3	4	5	6	7
	Back and shell					
	Do.	Steam and water drum (1)				
	Do.	Do. (2)				
	Do.	Do. (3)				
	Do.	Mud drum (1)				
	Do.	Do. (2)				
	Do.	Do. (3)				
	Shell crown					
	Dome end					
	Saddel					
	Fire box casing sides					
	Doubling plate front					
	Doubling plate back					
Flanged and fire exposed plates	Furnance circular (plain)					
	Do.					
	Furnance circular (corrugated)					
	Firebox crown					
	Firebox side					
	Firebox front					
	Firebox tube					
	Uptake					
	Smokebox tube					
	Com. Chbr. wrapper					
	Com. chbr. back.					
Tubes	Cross tubes					
	Smoke tubes (plain)					
	Smoke tubes (stay)					
	Water tubes (bottom or front bank)					
	Water tubes (top or rear bank)					
	Balancer tubes (steam)					
	Balancer tubes (water)					
	Superheater tubes					
	Do.					
	Do.					
	Water wall tubes					
	Do.					
	Integral Economiser tubes					

Headers and Cross Boxes	ctional headers	
	Water wall headers	(1)
	Do.	(2)
	Do.	(3)
	Do.	(4)
	Do.	(5)
	Do.	(6)
	Integral Economiser	
	headers	(1)
	Do.	(2)
	Superheater headers	(1)
	Do.	(2)
	Do.	(3)
	Do.	(4)
	Do.	(5)
	Do.	(6)
	Mud boxes	(1)
	Do.	(2)
	Do.	(3)
	Do.	(4)

---

Stays and Bolts	Gusset stay plates
	Longitudinal
	Cross
	Screw
	Roof
	Firebox roof slings
	Firebox roof pins
	Girder bolts
	Shell angle bolts
	Uptake angle bolts
	Manhole bolts
	Sighthole bolts

---

1	2	3	4	5	6	7
Miscellaneous	Firebox girders End plate stiffeners Shell angle Furnance angle Uptake angle Gusset angle Manhole compensation ring Manhole frame Manhole cover Sighthole compensation ring Sighthole doors Stand blocks Stand pipes					

## 7. Details of Drums

No.	Nomenclature	Nominal dia	Length	Shell Plate		Tube Plate		Head			Manholes No. & Size	Hydro- static test lb./ sq. in
				Thick- ness in 32nds in	Inside radius in	Thick- ness in 32nds in	Inside radius in	Thick- ness in 32nds in	Type	Radius of dish in		
1	2	3	4	5	6	7	8	9	10	11	12	13
1												
2												
3												
4												
5												
6												

\*Indicate (1) Flat (2) Dished (3) Ellipsoidal (4) Hemispherical.



## 8. Headers and Boxes

No.	Size and shape	Thickness in 32nds in	Head or end		Hydrstatic test lbs/sq. in
			Shape	Thick- ness in 32nds in	
Water Wall Headers	I	.	.	.	.
	2	.	.	.	.
	3	.	.	.	.
	4	.	.	.	.
	5	.	.	.	.
	6	.	.	.	.
Integral economiser headers	I	.	.	.	.
	2	.	.	.	.
Superheaters Headers	I	.	.	.	.
	2	.	.	.	.
	3	.	.	.	.
	4	.	.	.	.
	5	.	.	.	.
	6	.	.	.	.
Mud boxes	I	.	.	.	.
	2	.	.	.	.
	3	.	.	.	.
	4	.	.	.	.

## 9. Tubes

Sr. No.	Nomenclature	Outside diameter in inches	Thickness in roots in
1	Cross tubes	.	.
2	Smoke tubes (Plain)	.	.
3	Smoke tubes (stay)	.	.
4	Water tubes (bottom or front bank)	.	.
5	Water tubes (rear or top bank)	.	.
6	Balancer tubes (Steam)	.	.
7	Balancer tubes (water)	.	.
8	Superheater tubes	.	.
9	Do.	.	.
10	Water wall tubes	.	.
11	Integral economiser tubes	.	.

## 10. Mountings

No.	Nomenclature	Material	Type	No.	Size
1	Main stop valve	.	.	.	.
2	Auxiliary stop valves	.	.	.	.
3	Safety valves (a)	.	.	.	.
	(b)	.	.	.	.
	(c)	.	.	.	.
4	Blow down valve (s)	.	.	.	.
5	Feed check valves	.	.	.	.

II. *Details of Safety Valves and Test Results*

Manufacturer.....  
 Identification marks of valves.....  
 Maker's No. .... Type..... Lift..... in.....

*Valve*

Material.....  
 Valve seat.....  
 Flat/bevel.....  
 Angle.....  
 Material.....  
 Diameter of valve seating.....

*Material*

Valve body.....  
 Material.....  
 Opening at neck.....  
 Opening at outlet.....

*Spring*

Material.....  
 Process of manufacture.....  
 Chemical composition.....  
 Dimensions.....  
 Outside diameter of coil.....  
 Section of wire.....  
 Number of free coils.....  
 Free length of coil.....

*Test Results*

Place of test..... date.....  
 Blow off pressure..... lbs./sq. in.  
 Closing down pressure..... lbs./sq. in.  
 Relieving capacity (by test)..... lbs./hr.  
 Lift at full blow off pressure..... ins.  
 Quality of steam.....

Remarks :—

Does the valve chatter .....

Does valve stem leak .....

The valve conforms to drawings Nos. ....

INSPECTING AUTHORITY  
Witnessing tests

**\*\*NOTE.**—Manufacturer's Certificate in original or boiler Manufacturer's Certificate.

12. Certified that the particulars entered herein in manuscript by us are correct and that parts and fittings in section 2 to 11 against the names of which entries are made, have been used in the construction and fittings of the boiler.

The particulars shown against the various parts used are in accordance with the enclosed Certificates from the respective makers.

The design of the boiler is that as shown in Drawing Nos. ....

The boiler has been designed and constructed to comply with the regulations under the Indian Boilers Act, 1923, for a working pressure of ..... lbs. per square inch at our works above named and satisfactorily withstood a water test of ..... lbs. per square inch on the ..... day of ..... 19..... in the presence of our responsible representative whose signature is appended hereunder.

MAKER

(Signature of Maker)

or

Secretary of Firm

Designation

Name and Signature of Engineer who witnessed test.

Dated at ..... the day of ..... 19 ..

Official Seal.

Name and Signature of Inspecting Authorities

(C) After Form III the following shall be inserted as Form IIIA, namely :—

FORM III-A  
CERTIFICATE OF MANUFACTURE AND TEST  
[Regulation 4(e)]

Name of part. ....

Maker's name and address .....

Intended working pressure ..... lbs./sq. in

Intended maximum temperature ..... °F

Hydraulic test pressure ..... lbs./sq. in  
 Main dimensions .....  
 Drawing Nos. ....  
 Identification marks .....  
 Brief description .....

2. MATERIAL .....  
 Process of manufacture .....  
 Fully killed .....  
 Chemical composition .....  
 Mode of manufacture .....  
 Ultimate tensile stress ..... test piece.  
 Elongation ..... % on .....  
 Bend test on material .....  
 Bend test on weld .....  
 Flattening test .....  
 Heat treatment .....  
 Mode of attachment of flanges .....  
 Flange particulars .....  
 Size of branches .....  
 Mode of attachment of branches .....  
 Mode of reinforcement .....  
 Heat treatment of joints after attachment of flanges and branches .....  
 Final Hydraulic test ..... lbs./sq. in

\*This form is to be used for steam pipes and fittings referred to in Chapter VIII.

Certified that the particulars entered herein in manuscript by us are correct and that parts and fittings against the name of which entries are made, have been used in the Construction of the Boiler and its fittings.

The particulars shown against the various parts used are in accordance with the enclosed drawing Nos.

The part has been designed and constructed to comply with the Indian Boiler Regulations for a working pressure of ..... lbs./sq. in and temperature of ..... °F  
 at our works above named and satisfactorily withstood a water test of ..... lbs./sq. in. on the .....  
 day of ..... 19..... in the presence of our  
 responsible representative whose signature is appended hereunder.

MAKER .....  
 Designation

Name and Signature of Engineer whose witnessed test

Dated at ..... the day of ..... 19 . "

[No. S & P-II/BL-304(21)/54.]

M. N. KALE, Secy.

Central Boilers Board.

**MINISTRY OF REHABILITATION***New Delhi, the 22nd May, 1956*

**S.R.O. 1273.**—In exercise of the powers conferred by Sub-Section (1) of Section 3 of the Displaced Persons (Compensation and Rehabilitation) Act, 1954 (44 of 1954), the Central Government hereby appoints Shri Roop Chandra, Custodian of Evacuee Property, Uttar Pradesh, to be the Additional Settlement Commissioner, Uttar Pradesh, for the purpose of performing the functions assigned to such officer by or under the said Act, within the State of Uttar Pradesh.

[No. 10/16/56-SIL.]

*New Delhi, the 23rd May, 1956*

**S.R.O. 1274.**—In exercise of the powers conferred by sub-section (1) Section 3 of the Displaced Persons (Compensation and Rehabilitation) Act, 1954 (44 of 1954), the Central Government hereby appoints officers specified in the second column of the Schedule hereto annexed, to be Settlement Officers for the purpose of performing the functions assigned to such officers by or under the said Act in the State of Delhi.

**THE SCHEDULE***Name of the officers and his designation.**Asstt. Custodian and Managing Officer, Delhi.*

- |                         |   |
|-------------------------|---|
| 1. Shri R. N. Malhotra. | } |
| 2. Shri Sarup Singh.    |   |
| 3. Shri K. L. Taxall.   |   |
| 4. Shri R. K. Kalra.    |   |

[No. 10/3/56-SIL.]

MAN MOHAN KISHAN, Under Secy.

*New Delhi, the 28th May, 1956*

**S.R.O. 1275.**—In exercise of the powers conferred by sub-section (1) of Section 3 of the Displaced Persons (Compensation and Rehabilitation) Act, 1954 (44 of 1954), the Central Government hereby appoints Shri Shanti Saroop as Settlement Officer for the purpose of performing the functions assigned to such officer by or under the said Act, with effect from the date he took charge of his office.

[No. 6/5/56-SIL.]

KULWANT SINGH, Under Secy.

**MINISTRY OF LABOUR***New Delhi, the 23rd May, 1956*

**S.R.O. 1276.**—In exercise of the powers conferred by sub-section (5) of Section 5 of the Dock Workers (Regulation of Employment) Act, 1948 (IX of 1948), the Central Government hereby directs that the following further amendments shall be made in the Dock Workers (Advisory Committee) Rules, 1949, namely:—

2. For rule 3 of the said rules, the following rule shall be substituted, namely:—

"3. *Constitution.*—The Committee shall consist of fifteen members to be appointed by the Central Government, namely—

(1) five members representing the Central Government who shall be—

- (i) the Secretary to the Government of India, Ministry of Labour, who shall be the Chairman,
- (ii) the Chairman, Calcutta Dock Labour Board,
- (iii) the Chairman, Bombay Dock Labour Board,

- (iv) the Chairman, Madras Dock Labour Board,
- (v) the Director General of Shipping.

(2) five members representing the employers of dock workers who shall be appointed in consultation with such Associations of employers as the Central Government may consider appropriate,

(3) five members representing the dock workers who shall be appointed in consultation with such unions of dock workers as the Central Government may consider appropriate."

3. After rule 3 of the said rules, the following rule shall be inserted, namely:—

"3-A. *Secretary of the Committee.*—The Chief Labour Commissioner (Central) shall be the ex-officio Secretary of the Committee and shall be entitled to attend meetings of the Committee. He shall not have a right to vote."

[No. DC-106.]

K. N. NAMBIAR, Dy. Secy.

*New Delhi, the 25th May, 1956*

**S.R.O. 1277 [CDLB(2)(3)/567].**—In pursuance of sub-clause (3) of clause 4 of the Calcutta Dock Workers (Regulation of Employment) Scheme, 1951, the Central Government has appointed Shri L. M. Hogan with effect from the 17th April, 1956, as a member of the Calcutta Dock Labour Board in the vacancy caused by the resignation of Shri K. Miter with effect from the date, and directs that the following amendment shall be made in the notification of the Government of India in the Ministry of Labour, No. S.R.O. 1908, dated the 7th September, 1955, namely:—

In the said notification, under the heading "*Members representing the Central Government*" for item (2), the following item shall be substituted, namely:—

- "(2) Shri L. M. Hogan, Traffic Manager, Commissioners for the Port of Calcutta."

[No. F.Fac.74(64)55.]

B. R. KHANNA, Under Secy.

*New Delhi, the 28th May, 1956*

**S.R.O. 1278.**—In exercise of the powers conferred by sub-section (1) of section 19 of the Minimum Wages Act, 1948 (XI of 1948), the Central Government hereby appoints the Junior Labour Inspector (Central), Delhi, to be an Inspector for the purposes of the said Act within the State of Delhi.

[No. LWI-I-2(2)/56.]

#### ORDER

*New Delhi, the 23rd May, 1956*

**S.R.O. 1279.**—Whereas the Central Government is of opinion that an industrial dispute exists between the employers in relation to Messrs. Shaw Wallace and Co. Ltd. and their workmen in the Pench Valley Coalfield in respect of the matters specified in the schedule hereto annexed;

And whereas the Central Government considers it desirable to refer the said dispute for adjudication;

Now, therefore, in exercise of the powers conferred by clause (c) of sub-section (1) of section 10 of the Industrial Disputes Act, 1947 (XIV of 1947), the Central Government hereby refers the said dispute for adjudication to the Industrial Tribunal at Madras constituted under section 7 of the said Act.

#### THE SCHEDULE

Alleged wrongful termination of the services of Shri Shamlal and the relief, if any, to which he is entitled.

[No. LR-II-2(140)/54.]

## CORRIGENDUM

New Delhi, the 23rd May 1956

**S.R.O. 1280.**—In the Schedule to the Notification of the Government of India in the Ministry of Labour No. S.R.O. 593, dated the 31st March, 1952, published at pages 473 to 478 in Part II, Section 3, of the *Gazette of India Extraordinary*, dated the 31st March, 1952, the following correction shall be made:—

In the said Schedule, in the entries in the second column headed 'Name of the State', under Western Railway, for the words "Bombay State" substitute "Bombay and Madhya Bharat".

[No. LWI-7(26)/55.]

A. L. HANDA, Under Secy.

## MINISTRY OF INFORMATION AND BROADCASTING

New Delhi-2, the 22nd May, 1956

**S.R.O. 1281.**—In exercise of the powers conferred by sub-rule (3) of rule 9 read with sub-rule (3) of rule 10 of the Cinematograph (Censorship) Rules, 1951, and in modification of the Notification of the Government of India in the Ministry of Information and Broadcasting No. S.R.O. 1178, dated the 10th May, 1956, the Central Government hereby re-appoints after consultation with the Central Board of Film Censors the following persons as members of the Advisory Panel of the said Board at Madras with effect from the 1st March, 1956:—

1. Shrimati Rajammal Anantharaman,
2. Shrimati K. Lakshmi Raghu Ramaih,
3. Shri K. Chandrasekharan,
4. Shri V. C. Gopalratnam,
5. Shri P. Mallikarjuna Rao,
6. Dr. S. K. Nayar.

[No. 14/4/56-FC.]

## ORDERS

New Delhi-2, the 26th May 1956

**S.R.O. 1282.**—In pursuance of clause 2 of the directions issued under the provisions of each of the enactments specified in the First Schedule to the Order of the Government of India in the Ministry of Information and Broadcasting No. S.R.O. 945, dated the 28th April, 1955 and the Central Government with previous approval of the Film Advisory Board, Bombay, hereby certifies film specified in column 2 of the schedule hereto annexed, in all its language versions, to be of the description specified against it in the corresponding entry of column 5 of the said schedule.

## SCHEDULE

S. No.	Title of the Film	Name of the Producer	Source of Supply	Whether a scientific film or a film intended for educational purposes or a film dealing with news and current events or a documentary film.
1.	Indian News Review No. 397	Government of India, Films Division, Bombay.	Government of India, Films Division, Bombay.	Film dealing with news and current events.

[No. 14/2/56-FD; App.85.]



*New Delhi-2, the 28th May, 1956*

**S.R.O. 1283.**—The Central Government hereby:—

- (a) directs, in pursuance of the provisions of the Order of the Government of India in the Ministry of Information and Broadcasting No. S.R.O. 3805, dated the 26th December, 1955 and in modification of the Order of the Government of India in the Ministry of Information and Broadcasting No. S.R.O. 1181, dated the 8th May, 1956, that the Advisory Panel of the Central Board of Film Censors at Bombay shall consist of 31 members with effect from the 2nd June, 1956.
- (b) notifies for general information that Shri Nagendra Nagaich, a member of the Advisory Panel of the Central Board of Film Censors at Bombay retired under sub-rule (1) of rule 10 of the Cinematograph (Censorship) Rules, 1951, with effect from the 1st March, 1956.

[No. 14/1/56-FC.]

D. R. KHANNA, Under Secy.

